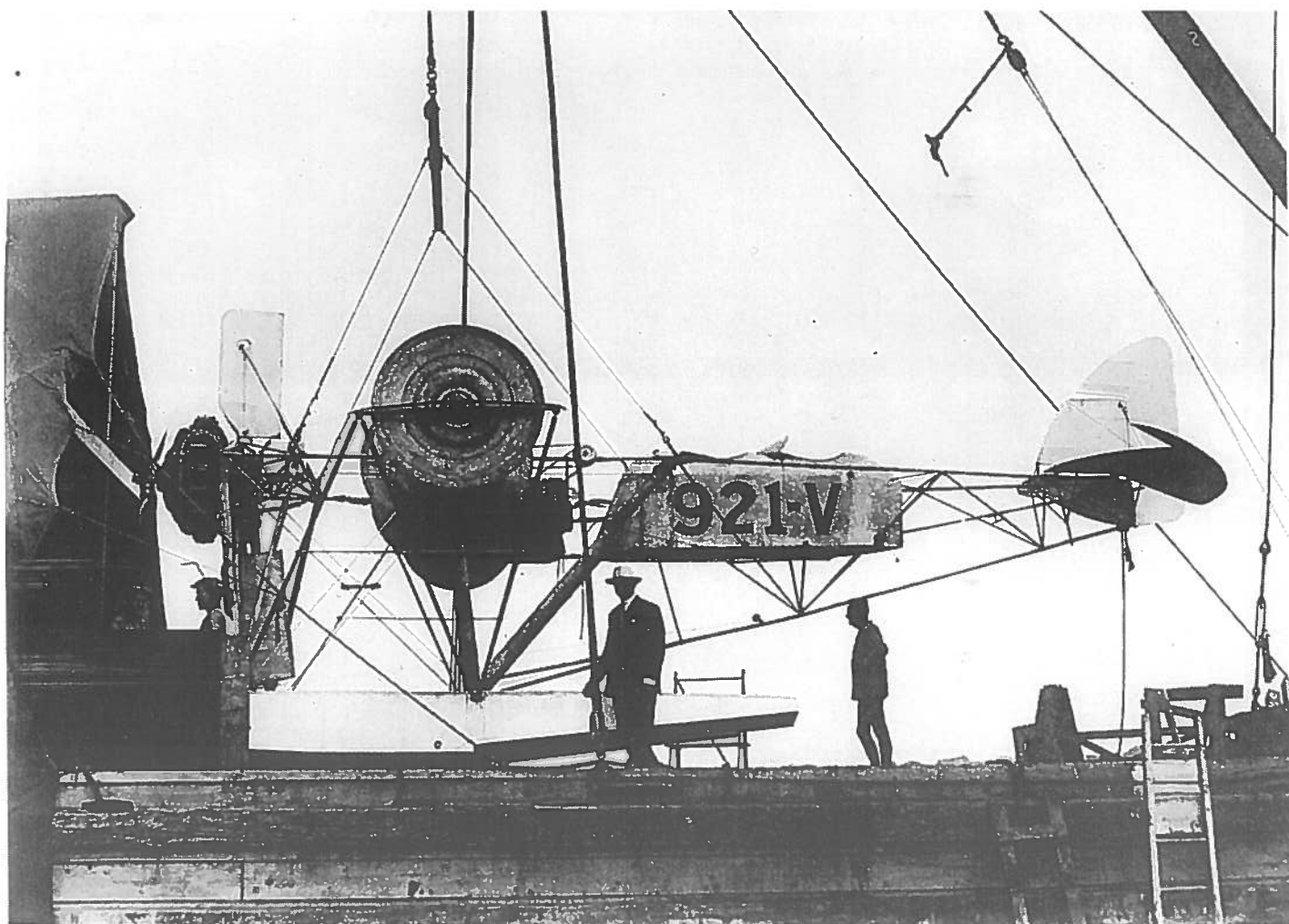


# small air forces observer

vol. 26 no. 1 (101)  
April 2002

US \$4.00



The Avia BH-33E in Yugoslav Service  
Aircraft of Uruguayan Military Aviation 1916-1919  
Paraguayan Air Force Aerobatic Team T-6  
Columbian & Peruvian Stearman PT-17

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April 2002



# SMALL AIR FORCES OBSERVER

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**SAFO EDITORIAL POLICY:** The purpose of the SAFCH is to "promote interest in the history and modeling of the aircraft of the smaller countries". In support of this goal, the SAFCH encourages international cooperation in researching aviation history, both military and civil, from all periods of time, and for all the smaller countries. In return for this support, members are asked to submit occasional progress reports for publication in the SAFO. While the final results should appear in the most prestigious publication possible, it is requested that the SAFCH be mentioned (with address) in the article and that SAFO be afforded the opportunity of reprinting the material. Article published in SAFO can be reprinted provided permission of the author is obtained and the SAFO is identified in the reprint.

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**BACK ISSUES:** Either back issues or Xerox copies of out-of-print issues are available for all issues of the SAFO published at \$3.25 each. For a list of all issues and their content, send two 1st class stamps (or 2 IRCs) to the editorial office.

**MEMBERSHIP LIST:** To promote cooperation between members, a list of SAFO member's names and addresses is available to SAFCH members for \$3.00 postage included.

**INFORMATION FOR AUTHORS:** Manuscripts may be submitted in any form; authors whose first language is not English may submit a rough translation of the text and the editorial office will put it into good English. Authors using a computer should send the manuscript on disc. Photo should be black and white prints although color prints can be used. If you want any photos returned, please mark "Return" on the back. All art work must be ready for printing. The layout should be such that when a page is reduced (if necessary) the drawing should fit into the 7.5 inch by 10 inch working area of the final page. Art work that does not fit this requirement will have to be cut and pasted to fit; no problem, but things might not look exactly as you want them to look. All work for the SAFO is voluntary and no payment can be made for published material.

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**LOST MEMBERS:** Anyone knowing the whereabouts of the following 'lost' SAFCH members please inform the editorial office (last known address included): Alain La Pierre, Maracay, Venezuela; Jaroslav Kusmirek, Lubartow, Poland; Jean Paul Castella, Marseille, France. Josef Gotz, Usti nad Labem, Czech Republic. Egils Pelecis, Riga, Latvia. Charles Berecz, Dayton, Ohio. Terry Elmore, Everett, Washington. Jean-Michel Guhl, Los Angeles, California. Masahiro Ohno, Japan.

**Deceased Members:** It is with great regret that we announce the passing of SAFCH members Charles Lamb and Thomas Kolk. Our sincerest sympathy to their families. They will be missed.

**SAFCH WEB SITE:** See SAFO photos in color and chat with members at [www.bartoli.com/safo](http://www.bartoli.com/safo)

**COVER COMMENTS:** Back in the late '40s or early '50s your editor was fascinated by plans in Model Airplane News for a control-line model that instead of a fixed wing or rotors obtained its lift from a horizontal cylinder that rotated about its axis. Later, in school, I learned about the "Magnus" effect - the phenomenon that causes a baseball to curve. Further research revealed that Anton Flettner (of German WWII helicopter fame) built an ocean-going vessel that was propelled by a vertically rotating cylinder. However, I never imagined that anyone would build a man-carrying aircraft based on this principle. Then the other day, I received this amazing photo from SAFCH member Olaf Bichel. See Olaf's comments in the "Letters" section of this issue. Perhaps someone can provide more information so Olaf can prepare an article on this unusual flying(?) machine.

### -wants&disposals-wants&disposals-wants&disposals-wants&disposals-wants&disposals-wants&disposals-wants&disposals-

"As some of our readers may know, a few years back I purchased the remains of a Hanriot HD 1 in England and rebuilt it to flying status. I then gave it to the RAF Museum at Hendon. Now, I would like to have a model finished in the color scheme of this Hanriot. I have a kit of the HD-1, but I am not a very good modeler. If someone would like to make a model for me, I would send them the kit and photos of the plane in correct markings. The paint job put on the plane by the RAF Museum is not correct.

"I am now very interested in the planes of the

Spanish Civil War, and I hope someday to get a real I-15 and restore it to flying status."  
Marvin Hand (SAFCH #1448), 1465 Leslie Rd., Healdsburg, CA 95448, USA.

"I would like to obtain accurate scale drawings of the Piper PA-28RT-201 Arrow IV. This is the little 'T' tailed light aircraft used by the Finnish Air Force since 1980. I would like to try to make a model of it by re-working one or two Airfix Piper Arrow II kits, but I need good drawings. I've written to Piper in the USA, but have not received a reply.

No one in Finland I've contacted can help. I think it might make a good conversion article as well as a smart model."

Ted Burnett (SAFCH #1221), 19 Tintagel Close, Parkside Grange, Cramlington, Northumberland, NE23 1NZ, England. E-mail: [ted@richieburnett.con.uk](mailto:ted@richieburnett.con.uk)

[Editor: Ted is the editor of the excellent Swedish Air Force SIG. He is doing a superb job and deserves our help.]

## AUSTRALIA

**AUSTRALIAN PLASTIC MODELLERS ASSOCIATION** (APMA, PO Box 51, Strathfield, NSW 2135; 4 issues sea mail A\$27; air mail A\$30). 1-02 (28 pages) "The Vickers COW Gun Fighter (or how to scratchbuild just about anything)" 8 pages including 2 photos of the model, two 1/72-scale 3-view drawings, and numerous sketches. [Ed: The best article on scratch building I've seen in a long time, and a fascinating subject for a model.] "Vulgar Bulgars" 5 pages including tables (Bulgarian Air Force WWII Organization, Order of Battle, and Available Kits in 1/72 Scale), 5 side-view drawings (Do 17M, Ju 52/3m, PZL P-43, Avia B.534, & Fi 156), and 8 photos of models. "SOC it to me: Odd Bods and Invaders" 2 pages on USN Curtiss SOC-3 Seagulls from the cruiser 'Louisville' visiting Sydney including one photo and a side-view drawing. "Pretty in Pink" one page with 3-view drawings of Spitfire PR.MK 1G 'LY' in overall PRU Pink. "The Shuttleworth Photos" 8 pages with 26 photos.

## AUSTRIA

**OFH NACHRICHTEN** (Oesterrichische Flugzug Historiker, Pfenniggeldf. 18/2/14, A-1160 Wien. Write for free sample.) 4/01 (36 pages) "Das Modell eines K-Flugbootes" 6 pages on a 1/10-scale model of a K-Boat including 4 photos of the model, 4 photos of the aircraft, and tables of serials and specifications. "Flugtag in Mauer 1927" 3 pages including 3 photos of the Schwalbe D992. "AB 204B - 38 Jahre im Dienst für Österreich" 6 pages including 7 photos, 1/72-scale drawings of an AB 204B specially marked for the occasion, and a table listing all Austrian AB 204Bs. "Punto Nero" one page with one photo and a side-view drawing of Albatros D.ALBATROS. "Osterreichische L-Spatzen" one-table listing Austrian Scheibe-Segelflugzeuge Type L-Spatz. [Editor: The second volume in the OFH series "Air Victories on the KuK Luftfahrtruppen in World War One: (Russian Front 1914-1916) is now available for Euro 17. To order, write to the OFH at the address above.]

## CANADA

**RANDOM THOUGHTS** (IPMS Canada, Box 626, Stn. B, Ottawa, Ontario K1P 5R7; 6 issues for US \$24.00 in US \$26.00 elsewhere). 27/3 (24 pages) "Variations of the Curtiss Hawk Model 75 - Part 2: Kit After-Market Accessories & References" 9 pages including 23 side-view and 2 top-view drawings of variants (from Polish publication by permission of A-J Press). "Revisiting Accurate Miniatures TBM-3 Avenger" 4 pages including 4 photos of the model. "Review of Accurate Miniatures SBD-5" one page including one photo of the model.

**THE CATALINA NEWS** (Val Thomas, The Catalina Society, Duxford Airfield, Cambs, CB2 3QR, England. One year £15. Web Site: [www.catalina.org.uk](http://www.catalina.org.uk). E-Mail: [david\\_legg@lineone.net](mailto:david_legg@lineone.net))

#49 January 2002 (24 pages) "A Cat with Nine Lives" 4-page war-time record of PBV-5A Bu2459 credited with sinking three U-boats and severely damaging a fourth while flying out of Iceland including 3 photos. "The Wing Walkers of VP-11" one page including one photo. "More on Water Bombing" one page including one photo. "Super Catalina Restoration Update" 2 pages including 3

photos. "World Catalina News" 3 pages including 4 photos.

**21th Century Plastic Modeller, PAMAG** (Publications), Ltd, Riverdale, 89 Graham Road, Sheffield S10 3GP, England. £2.25. Annual subscription (6 issues) £16.50 overseas or £20.00 airmail. \$33 from Wise Owl (see above).

#6 September-December 2001 (56 pages) "Heinkel He 111H 20" 4 pages on building the 1/72-scale Airfix kit including 14 photos and historical notes including 6 photos and one side-view drawing. "Armstrong Whitworth Seahawk" 4 pages on building the 1/72-scale Airfix kit including 10 photos of the model, 6 photos of the real thing, and 2 side-view drawings. "Bristol Brigand B.Mk.1" 5 pages on building the Hallam-Vac 1/72-scale vacuform kit including 16 photos of the model, 3 photos of the real thing, and a 2-page 1/72-scale multi-view drawing. "Photographing your Model: Part 1" one page including 2 photos. One-page reviews on building the Airfix 1/72 P-80 Shooting Star, 1/72 Revell F4U-5 Corsair, Revell 1/72 Hurricane Mk IIC/Fw 190A-B, Revell 1/72 Sukhoi S-37 Berkut, Revell 1/144 CH-47D, Pavia 1/72 Kawasaki Ki-102 Randy, & Aeroclub 1/72 SE-2a. Five-view scale drawing of the Fairchild PT-26 Cornell. Three-view scale drawing of the Curtiss XA-14.

**INSIGNIA** (Blue Rider Publishing, 43a Glasford St., London SW17 9HL, UK.) 4 issues £24.00 surface mail worldwide. Web Site: [www.insigniamag.com](http://www.insigniamag.com). E-Mail: [insigniamag@yahoo.com](mailto:insigniamag@yahoo.com). (North American subscription agent: Wise Owl Publications, 1926 S. Pacific Coast Highway, Suite 204, Redondo Beach, CA 90277. E-mail: [wiseowl@sprintmail.com](mailto:wiseowl@sprintmail.com). Web Site: [www.wiseowlmagazines.com](http://www.wiseowlmagazines.com)).

#17 Spring 2002 (36 pages) "Early Peruvian Air Arms" 6 pages including list of aircraft and 15 side-view drawings [Ansaldo A-1 Balilla, Ansaldo SVA-5, Aircro DH9, Avro 504K (3), Bristol F.2B, Morane-Saulnier Type L, Salmson 2A.2, FBA Type H, Norman Thompson NT.2B, Curtiss MF Seagull, Curtiss HS-2L, Georges Levy GL.40, & Vought O2U-1E Corsair]. "Swiss Fliegertruppe: Part 4" 5 pages including 17 side-view drawings [Fokker D.VII (4) & C-IX; Dewoitine D-9, D-19, D-26 (3), & D-27 (6); and Alfred Comte AC-1]. "Argentine Photo Special" 3 pages including 13 photos (FMA MB-2, I.Ae-30 Namcu, & I.Ae-24 Calquin; Savoia-Marchetti SM-79B; Stearman trainers; Grumman J2R-1; Martin 139-W; Douglas C-54; Vought V.142 Corsair; and Vickers Viking (4)). "Cancelled Projects: Horton Jets" 3 pages including one photo and two 3-view drawings (FAM I.Ae 37 & 48). "The Royal Iraqi Air Force 1931-1958" 2 pages including list of a/c and 7 photos [Hawker Nistr (2), Breda BA.65, He 111, DH 114 Heron, DHC-1 Chipmunk, & Hawker Fury FB.11]. "The CNAC Airline in WW2" 2 pages including 7 photos [Vultee BT-13, Douglas C-47 (93), DH Mosquito, Curtiss C-46, & He 111]. "Aviation in the Civil War in Russia" one-page book review including 4 side-view drawings (Don Air Corps H-B C.1 & Nieuport 28; Siberian Air Detachment Morane-Saulnier Parasol; and Far Eastern Republic Sopwith Strutter). "Air Force Insignia #27: Peru 1920-1930" 1/2 page with 4 color drawings of insignia. "Air Force Insignia #28 Argentina 1919-1945" 1/2 page with 5 color drawings of insignia. "Air Force Insignia #29 Iraq 1931-1958" 1 page with 2 color drawings of insignia. "Spanish I-16" one page with two color 2-view drawings of Republican

I-16. These I-16 are also the subject of the free decals sheet: (1) an I-16 of the Moron Fighter School in dark green over light blue and post-WWII roundels, and (2) an I-16 of an acrobatic demonstration team in light grey with yellow wings and horizontal tail, black "scallop" trim, and a red-outlined yellow lightning bolt on the fuselage.

## FINLAND

**FINNISH AIR FORCE SIG**, c/o Nils R. Treichel, Grosser Platz 4, 27432 Bremervoerde, Germany. Entirely in English.

No. 19 (10 pages) "No Glory for the Gladiator" 5 pages including 4-view drawings (port, starboard, top, & bottom) of GL-274 and GL 271. "Gnats are a Plague in Finnish Summer" one page (drawings to appear in the next issue). "A Review of the H.R. Bristol Bulldog Mk IVA" one page.

**SUOMEN ILMAILUHISTORIALLINEN LEHTI** (InScale 72, Makelankatu 5B10, 00550 Helsinki; Europe \$30, elsewhere \$35; payment by International Postal Order or in cash; no cheques accepted because of high redemption rates). Each issue includes a 2-page English summary.

4/2001 (24 pages) "Aircraft Skis and Ideology within Finnish Air Force" 7 pages with 8 photos (Fokker D.XXI, MS 406, Brewster 239, & Hurricane), 3 drawings of skis, and 6 side-view drawings of a/c on skis (Gloster Gladiator, Fokker D.XXI, Fiat G.50, Morane-Saulnier 406, Brewster 239, & VL Myrsky). Blackburn Ripon IIF (Part 1) 3 pages including two 3-view drawings (Ripon Mk II and I.V.L.E.27 project) and 4 photos. "Bombing Equipment of Finn AF Bristol Blenheim bombers" 4 pages including 5 photos and drawings of bomb racks and external modifications made to Blenheims. "Bristol Blenheim Mk.I and IV" one-page multi-view scale drawing of a/c in Finn AF service.

## FRANCE

**AVIONS: Toute l'Aeronautique et son Histoire** (LELA PRESSE, 29 rue Paul Bert, 62230 Outreau, France. 420F for 12 issues).

#106 Janvier 2002 (68 pages) "Iyozoh Fujita: as et gentleman" 6 pages including 15 photos, color cover painting of Zero shooting down a Devastator, and 2 color side-view drawings (A6M2b Zero and N1K1-J Shiden). "Une grue dans le tempe, la Lufthansa en guerre 2eme partie: 1939/1940" 13 pages including 24 photos, 4 color side-view drawings (Ju 52/3m), and 3 color painting (Fw 200, Do 25, & DC-2). "L'etonnant Latecoere 299A" 3 pages including 7 photos. "1964: l'ONU au Congo" 7 pages including 10 photos, one painting (DHC Otter), and 4 color side-view drawings [Sikorsky H-19D and Harvard Mk IIA (3)]. "Parachutistes, planeurs et transport civil pour les Whitley" 9 pages including 17 photos. "Les multi-places de combat Breguet 460/462 Vultur" 9 pages including 21 photos, 2 pages of 3-view sketches, and 2 color side-view drawings (Spanish & French). [Editor: Another good subject for our "Ugly Plane Contest!"] "Le Dewoitine D.371 Maquette Azur au 1/72eme" 3 pages including 9 photos.

#107 Fevrier 2002 (68 pages) "Courrier des lecteurs" One-page letter on the Latecoere 299A including 3 photos and a color side-view drawing. "Savoia 79 sur le front de l'est" 10 pages on the Romanian SM 79 including 22 photos, color cover painting, and 7 color side-view drawings [Fleet 10G, Nardi FN.305, IAR 38, IAR 80, & SM 79 (3)]. "L'Escadrille SPA 79 durant la Grande Guerre" 10

pages including lists of personnel & victories, 13 photos, a color 3-view drawing of David Lewis' Spad XIII, and 3 color side-view drawings [Sopwith 1 B2 and Spad XIII (2)]. "1964: l'ONU au Congo" 6 pages including 7 photos and 3 color side-view drawings (Harvard Mk II). "Une grue dans la tempe la Lufthansa en guerre: 1941" 13 pages including 25 photos and 3 color drawings (He 111, Ha 139, & DC-3). "Un 'nocturne' tchecoslovague: l'Aero A-21" 3 pages including 4 photos. "Les Bleriot XI de l'aviation militaire belge" 5 pages including 9 photos and one color side-view drawing. "Le Latecoere 523 de Aerovac au 1/72eme" 32 pages including 5 photos. A 7-page insert "Index des magazines" lists all the articles appearing so far in Avions, Jets, Batailles Aeriennes, and Navire & Histoire. Articles in Avions and Jets are sorted first by country and then by type of a/c followed by articles not devoted to a single a/c type.

#108 Mars 2002 (68 pages) "Courrier des lecteurs" Photos of Portuguese MS 225 and Fokker trimotor in the Belgium Congo. "La 'Racer' Salmson-Bechereau SB 3" 4 pages including 5 photos and a color 2-view drawing (top and front views). "Des Savoia 79 contre la Luftwaffe" 13 pages including 27 photos, 2 pages of scale drawings, 3 color side-view & one color top-view drawings of Romanian Savoia JRS 79/B1, and 3 color side-view drawings (Nardi FN.305, Fw 58 Weihe, & IAR 39). "Le Bucaneer" 6 pages on RN Blackburn Buccaneers including 17 photos. "Le Heinkel HE 8" 10 pages on HE 8 in Danish service including 15 photos, a 2-page cutaway drawing, and a color side-view drawings of an overall silver HE 8 and a color 4-view drawings of an all-red HE 8 used for polar exploration. "Les Bleriot XI de l'aviation militaire Belge" 7 pages including 19 photos and a color side-view drawings of a/c carrying Belgian roundels and rudder colors. "Le Super Broussard de Heller au 1/75eme" 6 pages including 16 photos of the model and the real thing.

## GERMANY

MITTEILUNGEN (IPMS Germany, Bergengruenstrass 5-7, D-1000 Berlin 38; 12 issues DM 60.00 Europe, DM 65.00 USA, DM 70.00 Japan, DM 75.00 Australia).

3-2001 (40 pages) Nothing of small-air-force interest.

4-2001 (40 pages) Nothing of small-air-force interest.

5-2001 (40 pages) "Flakscheinwerfer 34" 3 page on German searchlight with 5 photos and 2 pages of scale drawings. "Fi 103/R-IV" 2-page review of MPM 1/48 scale piloted V-1 including scale 2-view drawing.

6-2001 (40 pages) Nothing of small-air-force interest.

## ITALY

JP-4 Mensile di Aeronautica (JP-4, CP 1550, 50100 Firenze; L 27.000 Europe, L 30.000 elsewhere).

Giugno 2001 (100 pages) Color photos: Danish F-16 & Greek A-7. "Turkish Stars" 4 pages on aerobatic F-5s including 7 photos. "Viaggio stornio al cavallino" 5 pages including 13 photos of Italian a/c carrying the 'cavallino rampante nero' squadron insignia.

Dicembre 2001 (100 pages) Color photos: Swiss F-5E in "tiger" scheme, Malaysian Bombadier, Uruguayan & Bolivian SF 260, and Israeli Jet Commander with Mig nose. "Diario di guerra" 6-page diary of air war in Afghanistan from 11/9 to 26/10 including 11 photos. "Phantom Spagnoli" 6 pages including 19 color photos. "Isola del Sale: tra leggenda e realta" 4-page story of flight of SM 83 from

Isola Sal to Recife, Brazil, including 6 photos. "Antisom Scozzesi" 6 pages including 15 photos of RAF Nimrods.

Gennaio 2002 (100 pages) "Diario di guerra" 8-page diary of air war in Afghanistan from 28-28/10 to 27/11 including 24 photos. "AMX in Canada" 6 pages including 11 photos. "Delta nei Caraibi" 4 pages on the Mirage with the Fuerza Aerea Venezolana including 10 photos.

Febbraio 2002 (100 pages) Color photos: Saudi Arabian AF Lockheed L.100-30 '421'; Swiss F-18 'J-008'; & Turkish AB.212 'TCB-48'. "Antisom italiani" 6 pages including 15 photos Italian Breguet Atlantics and 6 color photos of squadron badges. "Il museo di Lahti" one page with 5 photos of Finnish aircraft in a 'Hanger for Historic Airplanes' (Caudron CR-714 & Mig-21bis).

LUCHTVAARTKENNIS (Koninklijke Nederlandse Vereniging voor Luchtvaart, c/o Casper C.J. Veldkamp, PO Box 20061, 2500 EB The Hague, The Netherlands.)

3/2001 (48 pages) "Jodel Vliegtuigen" 11 pages including 3 small 3-view drawings, table of Dutch Jodels, and 6 photos of Dutch Jodels. "De Eerste Nederlandse Helicopter" 3 pages. "Romeo Ro.51" 2 pages including one photo. "De F.28 in Papoea-Nieuw Guines en Nauru" 3 pages including 4 photos. "De Panderjager en de LVA" 4 pages including a 3-view drawing. "Koolhoven FK-51" 5 pages in which SAFCH member Frits Gerdessen continues his list of individual FK-51 (s/n 400 to 428) and includes a 3-view drawing and 4 photos.

1/2002 (48 pages) "Koolhoven FK-59" 5 pages. "Amerikaanse Fokker F-14/C-14/C-15" 5 pages including 4 photos (Y1C-15, Y1C14, & Y1C-14A). "De Andere Glenn Martin B-10s" 10 pages including 4 photos (USAAC, Argentine, & Thailand), and "Voor de S.11" 4 pages including 3-view drawings of Fokker "onterp" 238 & 274. "Athena en Balliol" 3 pages including 2 photos. "Fokker FI en V.3" 3 pages including 3-view drawings of V.44 and F-1.

## SPAIN

REVISTA ESPANOLA DE HISTORIA MILITAR (Carlos Fresno Crespo, Alcaniz Fresno's S.A., C/Cromo 18-20, Poligono Industrial San Cristobal, 47012 Valladolid) 800 Pts.

#16 Octubre 2001 (80 pages) "Le Heinkel He 111H-16 de fabricacion espanola (2a parte)" 8 pages including 17 photos and 5 color side-view drawings. "La marina de Guerra Portuguesa y la Guerra Civil Espanola" 6 pages including 5 photos and a color side-view drawing of the "corbeta" 'Goncalo Velho'. "El Potez 25 TOE de la Aviacion Nacional" one page including one photo and one color side-view drawing. "North American T-6 'Harvard'" 7 pages on Portuguese T-6s including 3 photos, complete list of a/c (4 pages!), and 4 color side-view drawings. Poster insert: Canon antiaereo de 7.65 cm L/40 'Skoda'; Canon de hierro entubado 'Ordenez' de 15 cm; Autoametralladora-Canon BA-6; & Union naval de Levante UNL-35.

#17 Noviembre 2001 (68 pages) "Voluntarios Portugueses en las filas nacionales (2a parte)" 10 pages including one color side-view drawing of Miles Hawk 'CS-AAL' with Portuguese civil and Spanish Republican military markings. "Notas para la Historia de las Stinson 108-3 espanolas" 5 pages including 3 photos and 4 color side-view drawings. "Los Heinkel He 111H-16 de fabricacion espanola (3a parte)" 7 pages including 15 photos and 3 color side-view drawings. "El submarino 'Leonardo da Vinci' en combate" 5 pages including 3 photos and a color side-view drawing. "Los Gloster 'Gladiator'

en defensa de las Azores" 4 pages on Portuguese a/c including 3 photos and 3 color side-view drawings. Poster inserts: Kleiner Panzerbefehlswagen (Sd.Kfz.265), Carro Schneider CA-1 Mod. 1916, Mercedes Benz G4-540, & Canon de Vosta Krupp de 30,5 cm Mod.1887.

#18 Diciembre 2001 (68 pages) "Ataque japonese a Pearl Harbour (I parte)" 14 pages including 13 photos, 2 maps, tables of USAAC & USN a/c and Japanese ships, 14 color drawings of US squadron insignia, and 13 color side-view drawings [JN Zuikaku, Val, Kate (2), Zero, Jake, P-26A, P-36A, O-47, P-40B, B-18A, B-17C, & A-20A]. "Los entrenadores Avro 626 y 631 portugueses" 2 pages including 2 photos and 2 color side-view drawings (one with blue fuselage & yellow flying surfaces and the other an overall-silver a/c on floats). Poster inserts: Carro de Combate Panzerkampfwagen IV Mod.H, Carro Blindado 'Bilbao' Mod.1932, Carro de Combate Fiat 3000 A Mod.1921, Ametralladora Pesada Antiaerea de 20/65 Breda Mod.1935.

#19 Enero Febrero 2002 (68 pages) "El polemico caso del sargento Fierro" 6 pages including 3 photos and a color side-view drawing of Republican I-16 'CM-192'. "Ataque japonese a Pearl Harbour (II parte)" 15 pages including 11 photos, 7 maps of attacks on the harbor and airfields, table of Japanese a/c losses, and 10 color side-view drawings [USS Maryland, Val, Kate (2), Zero, Catalina, Kingfisher, Duck, Vindicator, & Dauntless]. "Los hidros CAMS 37-A" one page on Portuguese flyingboat including one photo and one color side-view drawing. "La Patrulla Atlantides" 6 pages on the flight of Spanish Dornier Wals along East coast of Africa including 8 photos and one color side-view drawing (Dornier Wal). Poster insert: Auti-Ametrallasora ligero 4x4 AML-245 H-90, Camion 2 Ton. 4x4 Dodge Mod.M-37, Transporte oruga acorazado (TOA) M-113, Blindado medio de ruedas (BMR) 600 pp, Also included with this issue is a 16-page booklet on early Spanish armored cars, "Blindados" including 9 photos and 3 color side-view drawings of Hotchkiss RMM (1908), Schneider (1909 & 1921), and Romeo 1921. [Editor: This may be the first part of a longer book, but my Spanish is not good enough to be certain.]

## USA

WWI AERO (15 Crescent Rd., Poughkeepsie, NY 12601; 4 issues \$30.00 USA or \$30 overseas).

#174 Nov 2001 (146 pages) "The 1902 Wright Glider: The Great Granddaddy of Everything that Flies" 12 pages including 13 photos, a 3-view drawing, and 2 pages of sketches of construction details. "Short Brothers and Wright Brothers" 17 pages including 6 photos and two 3-view drawings. "Building a Sopwith Triplane" 8 pages including 9 photos. "A Visit with Vimy" 8 pages including 16 photos. "The Mysterious Thomas-Pigeon Flyingboat" 6 pages including 16 photos. "Aircraft" 10 pages with 28 photos. "Drawings" 5 pages. "Museums/Organizations" 8 pages including 23 photos. "Identification X" 2 pages including 3 photos. "Film" 7 pages on the plane used in "Those Magnificent Men and their Flying Machines" including 13 photos and 12 3-view drawings of such oddities as the Phillips Mutiplane, Lee-Richards Annular Biplane and Edwards Rhomboidal Biplane.

SKYWAYS (15 Crescent Rd., Poughkeepsie, NY 12601; 4 issues \$30.00 USA or \$35.00 overseas.).

#61 Jan. 2002 (84 pages) The Abrams Explorer" 13 pages including 11 photos, a 2-page 5-view drawing, and full-page 3-view drawings of the proposed P-2, P-3, and P-4 versions. [A great scratch-build-



ing project, but does anyone have photos of the interior that would be quite visible with all that glass. And, by the way, does anyone have any hints on how to model all that glass?} "Cockpits: Stinson SR-10F/XC-81D" two pages, including 2 photos. "Golden Wings Museum" 11 pages including 25 photos. "Alexander Bullets" 2 pages including one photo and production list. "Antique Airfield Annual Fly-In" 16 pages including 31 photos and a 3-view drawing of the General Airplane Corp. Aristocrat 102-A. "The Aeronca C-3" 5 pages on flying the C-3 out of Ithaca in the 1930s including 6 photos. [Ed. Can anyone identify the building in the background of the photo on page 46?} "The Restoration of a Savoia-Marchetti S-36" 6 pages including 13 photos. "A Long Range S-56" one page on a 1931 flight from London to (nearly) Hong Kong. "ID UNK" 4 pages including 6 photos and a

full-page 3-view scale drawing of the Pasped Skylark.

ESM 72 (Model-Aire International, PO Box 159, Olema, CA 94950. E-mail: maiesm72@aol.com. Web site: members.aol/Maiesm72/maiwebpg.html.) Quarterly. \$25.00 for four-issue volume. \$30.00 outside the USA. Back issues available at same price per volume. Vol 5, No 2, (52 pages) "Training Aircraft" 18 pages Aermacchi to Zlin. "Aircraft Updates ESM 72 Vols.3-4" 6 pages. "Vehicles" 3 pages Spain to USA. "Vehicle Updates ESM 72 Vols.3-4" one page. "Vehicle Updates ESM 72 Vol.5" one page. "Replacement Wings & Control Surfaces" 2 pages. "Landing Gear" 4 pages. "Ships & Boats Updates ESM 72 Vol.1", "Rockets, Missiles & Spacecraft

Updates ESM 72 Vol.1", "Artillery Updates ESM 72 Vol.1", "Vehicle Parts & Accessories Updates ESM 72 Vol.2", "Figures Updates ESM 72 Vol.2", "Structures Updates ESM 72 Vol.3", "Terrain & Dioramas Updates ESM 72 Vol.3", "Aircraft Conversions Updates ESM 72 Vol.4" "Infantry Accessories Updates ESM 72 Vol.4", "Aircraft Canopies & Turrets Updates ESM 72 Vol.4", "Gliders & Sailplanes ESM Vol.5". "Aircraft Interior Details Updates ESM 72 Vol.5", "Helicopters, Autogyros & VTOL Aircraft Updates ESM 72 Vol.5", "Engine, Cowlings & Props Updates ESM 72 Vol.5" 23 pages.

## Chaco War Plastic Models

Antonio Luis Sapienza Fracchia

With the publication of the book I co-authorship with Dan Hagedorn "Aircraft of the Chaco War, 1928-1935" (Schiffer Publishing Ltd. (January 1997), kit manufacturers began releasing scale models of Paraguayan and Bolivian airplanes used in the Chaco War, some of them even with the corresponding decals.

Since I think it will be of interest to modelers of the Small Air Forces to have a collection of planes used in the above mentioned conflict, I've prepared the following list of kits.

First, regarding decal sheets, the British company Blue Rider has released two interesting ones a couple of years ago: BR250 "Gran Chaco Air War" Paraguayan bombers and transports 1928-35. This sheet has decals for the following aircraft: a SVA-5, a SVA-10, a DeHavilland DH-60G Gipsy Moth, a Potez 25 A.2, and a Potez 25 TOE. BR255 "Gran Chaco Air War # 2: Bolivian Air Force". This sheet has decals for a total of seven aircraft: two Curtiss Hawk II, two Breguet XIX, an Airco DH9, a Ford Trimotor, and a Junkers F-13.

Paraguay			
Kit	Manufacturer	Scale	Material
Ansaldo SVA-5	Pegasus	1/72	Plastic
	Czechmaster	1/72	Resin
	Smer	1/48	Plastic
Potez 25 A.2	Hitkit	1/72	Plastic
	Broplan	1/72	Vacuform
	Vami	1/72	Resin
Potez 25 TOE	Hitkit	1/72	Plastic
	Czechmaster	1/72	Resin
Wibault 73 C.1	Dujin	1/72	Resin
DeHavilland DH-60	Frog/Novo	1/72	Plastic
Gipsy Moth	Aeroclub	1/48	Vacuform
Breda 44	Planet Models	1/72	Resin
Fiat CR.20bis	Aeroclub	1/72	Plastic
	Esoteric	1/72	Vacuform
Macchi M-18 AR	Dekno	1/72	Resin
Curtiss D-12 Falcon	Sierra Models	1/72	Vacuform
SAML S.1	Formaplane	1/72	Vacuform
Ansaldo SVA-10	Formaplane	1/72	Vacuform

Of all the kits mentioned, the Hitkit models of the Potez 25 have Paraguayan decals as do the Aeroclub kit of the Fiat CR.20bis and the Planet Models kit of the Breda 44. For the rest, I suggest using the Blue Rider decals for WWI French roundels. The Hitkit model of the Potez 25 A.2 included the wrong roundels for the Paraguayan version, being similar to the British roundels, but this can be easily corrected since that decal sheet also include French roundels.

Bolivia			
Kit	Manufacturer	Scale	Material
Breguet XIX	Vaku-Aircraft	1/72	Vacuform
	Czechmaster	1/72	Resin
	Formaplane	1/72	Vacuform
Fokker C-VC	Vaku-Aircraft	1/72	Vacuform
Curtiss Hawk II	R/S Models	1/72	Resin
	Revell	1/72	Plastic
	Lindberg	1/48	Plastic
Junkers W.34	MPM	1/72	Plastic
Junkers F.13 L/W	Revell	1/72	Plastic
	Czechmaster	1/72	Resin
Junkers Ju.52/3m	Airfix	1/72	Plastic
	Revell	1/72	Plastic
	Italeri	1/72	Plastic
Ford Trimotor	Monogram	1/72	Plastic

None of the above mentioned kits come with Bolivian decals, so the best option will be the Blue Rider decal sheet.

It will be very interesting if kit manufacturers release more models related to this conflict, such as the Bolivian Curtiss Osprey, Curtiss Falcon, Vickers Vespa, and Vickers Scout, and the Paraguayan Hanriot HD-32, Morane Saulnier MS-35/MS-129, and the Savoia Marchetti S.59bis.

Antonio Luis Sapienza Fracchia (SAFCH #1160), PO Box 2721, Asuncion, Paraguay.

# The Avia BH-33E in Yugoslav Service

Sid Napier & Nenad Miklušev

The Avia BH-33E-SHS biplane was the most modern fighter in the inventory of the *Vazduhoplovstvo Vojske Kraljevine Jugoslavije* (VVKJ = Yugoslav Royal Air Force) until Hawker Fury Mk Is were taken on strength in June 1932. As the suffix SHS indicates, the aircraft was originally built for what, at the time the first order was placed, was still the *Kraljevina Srba, Hrvata i Slovenaca* (KSHS = Kingdom of the Serbs, Croats and Slovenes) but which became the *Kraljevina Jugoslavija* from October 3, 1929. However, the Avia BH-33E-SHS was ultimately operated by three different air forces, and, apart from a single Avia BH-33L, it was also the only Avia BH-33 subtype to see active service in both the fighter and ground attack role.

## Successful designs

The Avia BH-33 line of fighters designed by Pavel Beneš and Miroslav Hajn, was derived from their highly successful Avia BH-21, more than 120 of which were built by Avia and another 50 under licence by SABCA for the Belgian *Aeronautique Militaire*. The first of the line, the BH-33, was developed from the experimental BH-21J which, powered by an imported, 430 hp Gnome-Rhône 9-cylinder Jupiter radial instead of a 300 hp in-line Hispano-Suiza HS 8Fb, was test flown in July 1926 and "showed an unexpected improvement in rate of climb but also (...) unexpected and unpleasant loss of speed". Like the BH-21, the Avia BH-33 had a slab-sided wood and plywood fuselage, a lower wing of greater span (8.90 metres) than the upper, lower-wing ailerons with "park bench" compensators, and landing gear with a "straight" split axle. It also had unbalanced elevators and an unbalanced rudder, but it was the first Avia fighter to feature a fin. It was powered by a Walter licence-built and uprated 450 hp Jupiter VI installed with uncowled but faired cylinders. This engine drove a Reed-Lavasseur two-blade metal propeller with a large, conical spinner. With Avia Works pilot Karel Fritsch at the controls, the prototype, BH-33.1, made its first flight on October 21, 1927.

A second prototype, the BH-33.2, first flown two days after the first, featured a completely redesigned rudder which was subsequently fitted on all BH-33s, and a revised exhaust manifold with two tubes forming a very shallow "V" in front of the two bottom cylinders. Some sources say there was also a third prototype, the BH-33.3, and a photo purporting to show this machine and taken at Brussels-Evére, Belgium, in 1936, shows it with separately cowled and faired ("helmeted") cylinders, a wooden propeller, and a redesigned split-axle like that of later BH-33 subtypes.

One prototype, apparently the BH-33.2, and five production standard machines were acquired by the *Ministerstvo národní obrany* (MNO = Czechoslovak Ministry of Defence) and given the military designation B-33. At least one, coded "167C" at the time, was fitted with a wooden propeller. The salient characteristics of the BH-33 (B-33), according to various Czechoslovak records, were: wingspan 8.90 metres, length 7.04 metres, take-off weight 1280 kg, maximum speed 270 km/h (168 mph) at sea level, 260 km/h (162 mph) at 3000 metres and 250 km/h (155 mph) at 5000 metres, cruising speed 238 km/h (148 mph), climb 4 min 10 sec to 3000 metres

and 8 min 40 sec to 5000 metres, ceiling 8000 metres.

In January 1928, after an Avia B-33 (BH-33) had been demonstrated in Warsaw, Poland purchased both a pattern aircraft and a manufacturing licence. The design was modified to suit Polish requirements, the changes including, apart from landing gear with a redesigned split-axle, a Szomanski two-blade propeller with a small spinner which, driven by a licence-built 420-hp Bristol Jupiter IV, gave the aircraft a top speed of 242 km/h (150 mph). In 1930/31, 50 machines were built by the *Podlaska Wytworna Samolotow* (PWS). Known as the PWS-A and armed with two synchronized 7.92 mm machine guns, this aircraft was the only real service version of the original BH-33 design. The PWS-A equipped Polish fighter squadrons until, like the stop-gap PWS-10 that followed it into service, it was superseded by the PZL P-7a. Relegated to the fighter-trainer role, some PWS-As were still in service when World War Two broke out on September 1, 1939.

In 1929, Belgium purchased three BH-33s, reportedly the c/n 1001, c/n 1002 and c/n 1003, which were designated U1, U2 and U3 by the *Aeronautique Militaire*. Gerald Howson says these were the prototypes BH-33.1, BH-33.2 and BH-33.3. J. Miranda and P. Mercado agree, adding that all three had been brought up to production standard by modifying the exhausts and landing gear as well as fitting a wooden propeller more to the liking of the Belgians. Licence production by SABCA had probably been envisioned: if so, the project was eventually abandoned, and the Avias were only used by Belgian air force pilots for aerobatic practice. Howson notes that, in the summer of 1936, the BH-33.3/U3 was refurbished by the Mulot-Ertas company at Brussels-Evére and purchased by a R. Vandeveldé on behalf of the Spanish Republicans. The Avia was repainted white with all registration concealed, the gun troughs were covered over and the gun-synchronization mechanisms removed and hidden in the fuselage. On August 26, 1936, the Avia was flown across France by ex-air force pilot André Autrique, who landed twice in the countryside to refuel from waiting vans. He then lost his way, landed in a field at Ste-Foy-la Grande near Libourne (Bordeaux), was arrested and only released after intervention by the French Air Minister, Pierre Cot. When Autrique landed at Barcelona on August 27 he found that the gun-synchronization mechanisms had been stolen. Autrique subsequently flew a Polikarpov I-15 of the Republican air arm, but what happened to the Avia is unknown. Miranda and Mercado again agree with Howson, reproduce a photo of the BH-33.3/U3 taken at Evére, but give fewer details and say that this aircraft, although painted white, still had "S.A.B.C.A. 3" on the rudder when flown to Spain.

Meanwhile, the next development of the Avia BH-33, the BH-33E, had been demonstrated with breathtaking aerobatics at Vincennes near Paris by test pilot Škpt František Malkovsky during the May 1928 *Salon Aeronautique*. The new aircraft retained the unequal span wings, ailerons with park bench compensators and tail surfaces of its predecessor, but these were combined with a completely redesigned, oval-section steel-tube fuselage that was mainly fabric covered, and a new "V" split-axle which provided better

ground clearance Two venturi tubes were mounted one above the other on the starboard side of the fuselage just aft of the metal panels of the engine cowling. Either a 450 hp Jupiter V1 or a supercharged 480 hp Jupiter VII could be installed, both radial engines featuring separately cowled and faired cylinders, and both driving metal two-blade fixed-pitch propellers without spinners The Jupiter VI gave maximum speeds of 285 km/h (177 mph), 270 km/h (168 mph) and 265 km/h (165 mph) at 1000, 3000 and 5000 metres respectively; the Jupiter VII, 294 km/h (183 mph) at 1000 metres. The Avia BH-33E's contemporaries, the Bristol Bulldog Mk IIA with a 490 hp Jupiter VIIF and the Nieuport-Delage Ni-D 633 C1 with a 500 hp Hispano-Suiza 12HB, attained maximum speeds of 283 km/h (177 mph) and 269 km/h (168 mph) respectively

In May 1929, two Avia BH-33E fighters were purchased by the MNO. These were given the military designations B-33.7 and B-33.8, the former being powered by a Jupiter VI and the latter by a Jupiter VII. A single BH-33E, the BH-33P, was sold to Poland, and another three were acquired by the Soviet Union. What happened to these machines is unknown.

One or more BH-33E airframes were tested with a special high-altitude Jupiter VII, a NACA cowling and a BMW-built 525 hp Pratt & Whitney Hornet 9-cylinder radial, the two latter apparently being designated the BH-33N and BH-33H respectively. Production did not follow.

The final development of the BH-33 was the BH-33L, the prototype of which first flew on August 2, 1929. The design featured equal upper and lower wingspans of 9.50 metres with a fuel tank in the upper wing and redesigned landing gear. The oval section steel tube and fabric fuselage of the BH-33E was modified to allow installation of a 500 hp Škoda L (Hispano-Suiza 12NBR) liquid-cooled, in-line engine that gave a maximum speeds of 298 km/h (185 mph) and 265 km/h (165 mph) at 1000 and 5000 metres respectively. The overall length was 7.22 metres, the height 3.13 metres, and the empty weight 1115 kg. Two machine guns were mounted in the "W" of the three cylinder banks.

The BH-33L prototype quickly found favour with the MNO and was purchased, together with three hastily built production machines which were given the military designation Ba 33. The three Ba 33s were entered in the 1929 3. *Circuit de la Petite Entente pour avions de chasse* staged in Poland. Avia ultimately built a total of 81 Ba 33s in the period 1930 through 1932, and these machines remained the standard equipment of Czechoslovak fighter squadrons throughout the early 1930s.

Attempts were also made to secure export orders for the Avia BH-33L (Ba 33), but without any apparent success. These included the shipment in a container, on March 17, 1930, of a BH-33L, Works No.1020, to Mukden, Manchuria, in an endeavour to secure an order from the Chinese government. The machine was re-assembled on June 6, 1930, flown by test pilot Cestmir Hanus, and demonstrated, on October 5, 1930, in competition with other manufacturers' aircraft. The resulting negotiations with the Chinese authorities dragged on until the Avia representatives had to return home to cut expenses, leaving the BH-33L in a sealed container in Mukden. Soon after the Japanese invaded Manchuria, took Mukden, and on September 19, 1931, confiscated all available aircraft. On October 1, 1931, the Japanese broke open the sealed container, re-assembled the BH-33L, tested it, and

applied Japanese markings. They then operated it until at least June 1932, when it was reportedly used in attacks on Chinese positions in Tsi-Tsikar province. The Avia factory, backed by the Škoda concern, contacted the Japanese authorities and sought US\$ 30,000 in compensation. The Japanese procrastinated and haggled, but payment was finally made by the Quang-Tung Army on March 17, 1933. The price for the Chinese would have been US\$ 29,000.

Beneš and Hajn, having been given little or no say in the development of the final version of their design, left Avia and went to work for another aircraft manufacturer.

### The Avia BH-33E-SHS or "Avija Jupiter"

After an Avia BH-33E and a Dewoitine D.27 had been tested "in parallel" at Novi Sad in the Vojvodina, Serbia, on November 13, 1928, the Yugoslavs ordered three Avia fighters and acquired a manufacturing licence for Ikarus in Zemun, Serbia

Like one of the BH-33Es purchased by the MNO, the Avia BH-33E as ordered for the VVKJ was powered by a 450 hp Jupiter VI radial which had each cylinder separately cowled and faired, but which drove a wooden, not metal, two-blade propeller of Avia design. There may also have been other, minor and not readily visible modifications. Hrelja and Dimitrijević give the following dimensions and performance data: wingspan 8.9 metres, overall length 7.04 metres, overall height 2.79 metres, weight empty 830 kg, maximum take-off weight 1250 kg, cruising speed 230 km/h (144 mph), maximum speed 270 km/h (169 mph), initial rate of climb 11 m/s, ceiling 8000 metres, maximum range 483 km. They say the armament consisted of a single 7.69 mm Darne machine gun mounted behind and above the engine; other sources say it comprised two 7.7 mm Darne machine guns.

The three aircraft built by Avia at Praha-Holesovice and delivered in 1929 were given the factory designation BH-33E-SHS, but the name *Avija Jupiter* was often favored by the VVKJ. They were used by the team chosen to represent Yugoslavia in the 3. *Circuit de la Petite Entente pour avions de chasse* hosted by Poland on September 4 through 8, 1929. According to reports in *LETECTVI* Vol. 1929, the official Czechoslovak team entered six aircraft and one reserve, five of which were Avia BH-33 subtypes. The reports list these as the Ba 33.1 (Kpt K. Brazda), Ba 33.2 (Kpt A. Soukap), Ba 33.3 (Kpt K. Mares), Avia B-131.1 (a BH-33E airframe powered by a Pratt & Whitney 525 hp Hornet radial and probably the renamed BH-33H; Škpt F. Malkovsky), Šmolik Š-31.1 (P&W Hornet, later designated Letov Š-131.1; Škpt J. Kalla), Šmolik Š-31.2 (P&W Hornet, Škpt L. Budin) and, in reserve, the Avia B-33.8 (Škpt F. Diviš). The three Jupiter VI powered Yugoslav Avia fighters were flown by Kapetan Z. Sintić, Kapetan J. Markičević and Poručnik (Lt) L. Bajdak. Belcarz remarks that of the 24 aircraft flown by four teams, eight were Avias, and that of the nine aircraft that completed the course, three were Avias. The B-33.8 flown by Škpt K. Mares (not Škpt F. Diviš) came second, and two Yugoslav BH-33E-SHS fighters came third and fourth. The race was won by the Šmolik Š-31.1 flown by Škpt J. Kalla. Belcarz notes that the three Ba 33s had led for the first four laps but then Soukap crashed and was killed, and cooling system problems with the in-line Škoda L engines compelled Brazda and Diviš to withdraw.

There has been some confusion regarding how many



Avia BH-33E-SHS fighters were built when and where and ultimately acquired by the VVKJ. Thus Belcarz says Avia built three in Czechoslovakia and Ikarus 30 in Zemun, Rajlich & Sehna state Avia built three and Ikarus 42, and Hrelja and Dimitrijević claim Avia built 23 and Ikarus 40! This confusion arose partly because some of the imported Avia fighters were shipped back to Czechoslovakia, then re-imported. For instance, No 1011, which was one of the first three purchased, was badly damaged shortly after delivery and sent back to the Avia works to be rebuilt. A substitute was imported, also crashed soon after delivery, and was returned to the Avia works in exchange for No 1011 which had by then been rebuilt. The fact is, well informed sources say, that Avia built three of the fighters in 1929 and another 20 a year later, while Ikarus licence-built 22 in the period 1933 through 1937. The delay in initiating licence production occurred because Ikarus only completed production, also under licence, of some 200 Potez 25s in 1932. (It is also said that the economic problems of the early 1930s imposed limits on military budgets, in which case the purchase of 20 Czechoslovak built Avias in 1930 must have been prompted by the risk of war with Italy that persisted from 1927 to 1932.)

Quoting *Jugoslovenski Istorijski Časopis* 1-2/2000, an informed source has advised one of the authors that the three Avias flown by the Yugoslavs in the 1929 *Petite Entente* competition, wore the serials 1009, 1010 and 1011, that the second lot of 20 built in Czechoslovakia bore the serials 1021 through 1040, and that those built by Ikarus were serialised 1041 through 1062. However, Ikarus reportedly also built Avias serialised 1063, 1064 and 1065, and there was apparently even a 1066 which crashed during flight trials but was repaired and taken into service with a new, unknown serial number.

The Avia fighters built by Ikarus were powered by Gnome-Rhône Jupiter radials licence built by *Industrija Avionih Motora A.D.* in Rakovica (IAM Rakovica). According to Hrelja and Dimitrijević, these engines were 480 hp Jupiter 9AD's and drove wooden, two-blade, fixed-pitch Avia Type 507 propellers made by Rogožarski.

The *Godišnjak Jugoslovenskog Vazduhoplovstva* 1933/34 (Yugoslav Aviation Year Book, 1933/34) records that, on September 6, 1933, six Avias took part in the *Vazduhoplovne utakmice za pehar Nj. V. Aleksandra I u kategoriji Ratnih dvoseda, Borbenih aviona i Školskih aeroplana* (Aviation Contest for the King Aleksandar I Trophy for Military Two-seaters, Combat and Training Aircraft). All six aircraft had been built in Czechoslovakia, but had been overhauled by Ikarus and re-engined with Jupiter radials built by IAM Rakovica. They were identified by the numbers "1" to "6" painted in white on the fuselage sides

No. Pilot	Serial #	Engine #.
1 <i>Narednik-vodnik III klase</i> (W/O 3) Rade Dejanović	1031	282
2 <i>Poničnik</i> Arsenije Boljević	1028	283
3 <i>Major</i> Zdenko Gorjup	1024	278
4 <i>Poničnik</i> Dobroslav Tešić	1026	280
5 <i>Poničnik</i> Albin Vesel	1029	284
6 <i>Podnarednik</i> (Sgt) Vladimir Gorup	1027	293

The race was won by *Major Gorjup* (No.3) and *Poručnik*

Tešić (No.4) came third. Photos of the two pilots and their machines later appeared in an Ikarus factory advertisement.

On June 6, 1937, a fairly new or recently refurbished Avia fighter filmed at Novi Sad-Jugovićevo airfield wore the serial No. 1045 and the Ikarus factory emblem on its rudder together with a large, white "39" on the fuselage sides. If "No. 1045" was an Ikarus works number, the aircraft must have been built sometime before 1937, if it was a VVKJ *evidencijski broj* this, together with the condition of the aircraft, would indicate it was one of the last built. The "39" on the fuselage may well have indicated that only that many Avias were still in service in June 1937.

In summary, the general opinion seems to be that the VVKJ acquired a total of 45 Avia fighters from 1929 through 1937, ie, three (1009-1011) plus 20 (1021-1040) plus 22 (1041-1062). However, that leaves unanswered the question of what happened to 1063, 1064 and 1065. Were all three perhaps taken into service like 1066 and operated wearing serials previously allotted to other Avias that had been written off?

### Interwars service

To date, no record has been found which shows where and by which *eskadrile, grupe* or *pukovi* (squadrons, groups or regiments) the BH-33E-SHS fighters were taken on charge following delivery by Avia and Ikarus. However, it was standard VVKJ practice to equip with the latest and best fighters those units tasked with the defence of Beograd (Belgrade), other major centres in Serbia, and Croatia. Thus the Avia equipped *eskadrile* were certainly those based at Zemun, and probably those at Knić and at Zagreb.

Also in accord with standard practice, Avia fighters probably were based together with the six Hawker Fury Mk Is at Zemun from 1932. But when the VVKJ subsequently acquired Hawker Fury IIs and then Hawker Hurricane Mk Is and Messerschmitt Me-109E-3s, the Avias were progressively relegated to the VVKJ's pilot training schools for use in aerobatics and dog fight training, e.g. at Mostar and Niš, or assigned to groups or squadrons for use as meteorological or liaison aircraft. In early 1940, when 18 Hawker Furies were transferred to Medosavec airfield at Niš, they joined a collection of obsolete fighter types that included Avias

In the meantime, in 1935, five of the Avia fighters on the strength of the *puk* charged with the defence of Beograd and, 12 Breguet Bre 19B2s from the *puk* at Skopje, were either loaned, leased or sold to Greece, where they were used to combat insurgents. One Avia was later returned to Yugoslavia and reinstated in the VVKJ inventory, but four were retained for service with the *Elliniki Vassiliki Aeroporia* (EVA = Hellenic Royal Air Force) and three of these are known to have undergone repairs or overhauls in 1938. The four ex-VVKJ Avias, together with two Avia B.534 vz. II fighters on charge to 24 *Mira*, account for the six Avia fighters shown in the EVA Order of Battle for October 28, 1940, and were apparently only withdrawn from service sometime before April 1941. It may therefore be assumed that, if the five Avia fighters were originally loaned or leased to Greece, four were subsequently purchased, whether in 1935 or later. (If all or some of the 12 Bre 19B2s were purchased or returned is unknown, but there were still Breguet 19s allegedly on charge to 1 *Mira* and 10 on charge to 2 *Mira* in October 1940.)

Sometime before World War 2 the VVKJ's Avia fighters

were given the new serials 2001 through 2028. This would seem to indicate that, if a total of 45 had originally been taken into service, 13 had been written off as well as four sold to Greece.

### The April War, April 6-17, 1941

At least 16, and very probably more, Avia BH-33E-SHS fighters were still in the VVKJ's inventory when Hitler launched Operation Marita, the invasion of Yugoslavia and Greece on April 6, 1941, in order to rescue the Italian army in retreat before Greek forces advancing into Albania.

Three Avia fighters had by this time been returned to operational status and on April 6 were on charge to the *Samostalna lovačka eskadrila pri III pilotskoj (lovačkoj) školi*, that is, the Independent Fighter Squadron, 3rd Pilot (Fighter) School, at Mostar-Kosor airfield in the Hercegovina. Two of the Avias were on detachment at Podgorica, Montenegro, when the airfield there was attacked by Messerschmitt Bf 109Es of 7./JG 26 at midday. Although they knew their aircraft were hopelessly outclassed, *Potporučnik* (2 Lt) Milenko M. Milivojević and *Narednik* (F/Sgt) Djordje B. Cvetković - whose birthday it was - took off and attempted to defend their base. Both were killed, the one being shot down by Oblt. Joachim Müncheberg at 1205 hrs (his 34th kill), the other crashing into a hillside five minutes later while evading Lt. Klaus Mietusch (his 6th kill) during a dogfight over the mountains. The German pilots thought they had destroyed Hawker Furies.

There is no currently known case of any other attempt made by Avia pilots to intercept Axis aircraft or strafe Axis ground forces before the Yugoslavs were forced to capitulate on April 17, 1941.

One Avia fighter, serial No.2005, white "28", was captured by Italian forces at Mostar-Kosor and must have been the third operated by the *Samostalna lovačka eskadrila*. But there is also reference in the records to an Avia that had been transferred from Režanovačka kosa (Kumanovo, Macedonia) and was captured by the Italians at Mostar-Kosor or Sarajevo. This aircraft had been on charge as a headquarters meteorological and liaison aircraft to 5.*lovački puk*, 36.*grupa* (5th Fighter Regiment, 36 Group), the *grupa* comprising 111 and 112 *eskadrile* equipped with 15 Hawker Furies. It is possible that it was No.2005, white "28", and had been transferred to Mostar-Kosor when the two Avias already there were moved to Podgorica.

German forces captured another four Avias at Zemun airfield, six undergoing maintenance or repairs at the Ikarus works, and another two at Butmir airfield (Sarajevo).

Axis forces thus captured a total of 13 or 14 Avia fighters in April 1941. Some of these must have been badly damaged and suitable only for cannibalization, since the new Croat air force reportedly never took more than seven into service.

### In Croat Service

In June 1941, the *Odjel zračnih snaga* (Air Force Department) of the Ustaša dominated *Nezavisna Država Hrvatska* (NDH = Independent State of Croatia) that had been proclaimed on April 10, 1941, secured an agreement in principle to repossess a large number of the VVKJ aircraft captured by German forces. The list compiled by the *Odjel* included six Avia BH33E-SHS fighters. Likso and Čanak note that seven Avia fighters were eventually repossessed in 1941

and given the new serials 3301 through 3307.

Many of the aircraft repossessed were damaged and had to be repaired either by Zmaj, Ikarus and the *Wiener Neustadter Flugzeugwerke* (WNF) in Zemun (which together with Ruma and its aircraft storage facilities had been annexed by the new Croat state), or by Rogožarski in Beograd and the *Državna fabrika aeroplana* (State Aircraft Factory) in Kraljevo. The Avia fighters were overhauled by Ikarus. The repairs took considerable time to effect and, initially at least, there must have been a shortage of spare parts.

The Croat air force established its 1.*Zakoplovna luka* (No. 1 Air Base) at Zagreb on June 25, 1941, a 2.*Zrakoplovna luka* at Rajlovac (Sarajevo) on June 26, and a 3.*Zrakoplovna luka* at Gnojnice (Mostar) on August 4. The aircraft based at Rajlovac went into action almost immediately against partisan forces, but it is not clear when Avia fighters were first operated in this ground attack role. Likso and Čanak do not show an Avia on charge to 1.*Jato*, 1.*Skupina* (1 Squadron, 1 Group) in September 1941. However, they note that, at the beginning of October 1941, "on the old biplane fighter, Avia BH-33E, the electrical installations were repaired, and a bomb carrier was installed under the wings. Where possible, carriers were built onto every aircraft, and were manufactured at the workshop itself".

Likso and Čanak show Avia fighters on charge to 17.*Jato*, 6.*Skupina* (17 Squadron, 6 Group) at Rajlovac on January 1, 1942.

In March 1942 an Avia fighter was one of several repaired aircraft delivered to Rajlovac from Zemun.

On May 30, 1942, Likso and Čanak note, a special *Skupina Cenić*, commanded by *Pukovnik* (Col) Ivan Cenić, was formed at an airfield near Banja Luka, Bosnia. The unit was equipped with nine aircraft detached from Rajlovac. These included two Avia fighters wearing the new, Croat serial Nos. 3302 and 3304. The Cenić Group's primary task was to combat partisan forces, mainly in the Kozara Mountains. The greatest number of sorties was flown during the German-Croat anti-partisan offensive of June 10 through July 30, 1942.

In the latter half of June 1942 the Rajlovac base took delivery of an Avia BH-33E-SHS wearing the new serial No. 3306.

Avia fighters were still being operated in 1943 by the Croat air force, the name of which had been changed in February of that year to *Bojno Zrakoplovstvo* (Combat Aviation). On October 18, one or more Avias were on charge to 5.*Jato - izvidničko*, 2.*Skupina* (5 Squadron - Reconnaissance, 2 Group) at Rajlovac.

Likso and Čanak make no reference to the operation of any Avia BH-33E-SHS in 1944, and none was apparently on charge to any *Jato* on October 1, 1944, when the name of the Croat air force had been changed once more, with effect from August 24, to *Vojno Zrakoplovstvo* (Military Aviation).

### Camouflage and Markings

In *Bojenje vojnih aviona*, 2 *deo* (Colour Schemes of Military Aircraft, Part 2), Ognjan Petrović and Srećko Bradić describe the camouflage applied to the VVKJ's "Avija Jupiter" fighters under Scheme 28, "Green". There were two variants.

One was the "Czechoslovak green" scheme applied to aircraft built by the Avia factory from 1926 through 1938. All the upper surfaces were painted *khaki světlá* (light khaki, FS

24098) and the undersurfaces *šedostrbrna* (silver grey). The fighters (and two twin-engine Avia-Fokker F.39s) purchased from Avia wore this scheme when they were first taken on strength by the VVKJ.

The second scheme worn, "judging by the paint remnants preserved on a piece of fabric from a locally built Avia fighter" was applied using *domaća zelena*, a locally manufactured green paint generally used on most Yugoslav-built aircraft in the 1930s.

This *domaća zelena* is described by Petrović and Bradić in *Bojenje vojnih aviona, 1 deo* (Colour Schemes of Military Aircraft, Part 1) under scheme 18, *Obuvatno zelena* or "Overall green". It is generally remembered by veteran airmen as *tamno zelena* (dark green) or *tamno maslinasto zelena* (dark olive green). There were apparently four variants.

One was the *svetlo maslinasta* or *vert olive clair* (FS 302266-34258) worn by French-built aircraft imported in the 1920s. The second and third were two shades of *tamno zelena* applied to aircraft built by Zmaj and Rogožarski, the former being described by Petrović and Bradić as *vert foncé* or *vert lierre* (FS 34096-34102) and the latter, with a brown tinge, as *vert foncé* or *kaki foncé* (FS 24064-34052-34079). The fourth variant, which was applied to the Fizir FP-2s built by Zmaj and to the PVT, R-100, RVD-13 and ŠIM X aircraft produced by Rogožarski, is described as *domaća maslinasto zelena* (local olive green) and was apparently close to FS 24098.

In view of what Petrović and Bradić say, it is obvious that the fighters built by Avia wore the "Czechoslovak green" camouflage scheme but that the licence-built machines must have been painted one of the two shades of "dark green" when they came off the Ikarus assembly line. It is reasonable to assume that, by 1940/41, all the Avia fighters still in service wore the *domaća maslinasto zelena* scheme, the Czech-built machines having by that time been repainted.

Petrović and Bradić state the undersurfaces of the Avia fighters were painted the standard *svetlo plavo-siva* (light blue-grey, approx. FS 25526 ).

Photos show the markings worn by the VVKJ's Avia fighters prior to World War 2 to have comprised *kosovski križ* (Kosovo Cross) roundels in four positions on the wings and a blue/white/red *zastava* (flag) on the rudder. As on some of the other older VVKJ aircraft, the roundels covered almost the full chord of the wing with the edges overlapping onto the ailerons. The first three Avias imported did not initially have a *zastava* painted on the rudder, only technical data positioned a little lower than was later the rule, but ultimately every Avia fighter had a *zastava* that covered the entire rudder, blue on top. No photo currently available shows whether some of the wing roundels had been painted over or the tail *zastava* reduced in size by April 1941.

The shots of the Avia fighter filmed at Novi Sad-Jugovićevo airfield on June 6, 1937, and an undated photo of another Avia show that the Ikarus factory emblem, "AVIA BH 33" and the serials No. 1045 and No. 1027 respectively, were painted in black Cyrillic characters on the upper, blue segment of the *zastava* on the rudder. Avia No. 1045 also had "39" painted in large white "squared" characters on the fuselage, but Avia No. 1027 wore no such code when photographed. Avia No. 2005 captured at Mostar-Kosor had "28" painted in white on the fuselage. The type identification

"BH 33", with or without the serial No., was usually painted in black Cyrillic characters on both sides of the fuselage aft of the engine cowling, but not always in exactly the same position.

No photo is currently available of an Avia BH-33E-SHS operated by the *Elliniki Vassiliki Aeroporfa*. However, it is more than probable that the VVKJ camouflage scheme was retained and only touched up as necessary until, perhaps, the aircraft underwent major repairs or overhauls in 1938 or later. It can be assumed that EVA blue/white/blue roundels were painted over the *kosovski križ* roundels on the wings and blue/white/blue vertical stripes over the *zastava* on the rudder. The fuselage markings would have comprised the letter "Delta" followed by a number, both possibly in large white characters as on the EVA's Gloster Mars VI Nighthawk fighters.

In service with the Croat *Zračne snage*, later *Bojno Zrakoplovstvo*, the repaired and overhauled Avia fighters retained the *maslinasto zelena* upper surface and *svetlo plavo-siva* undersurface scheme worn in VVKJ service. Likso & Čanak make reference to Yugoslav-built machines being "olive green as most similar aircraft had been in the Kingdom of Yugoslavia," and Ikarus must have had access to stocks of VVKJ paint.

According to orders published on May 24, 1941, the national insignia worn by aircraft of the *Zračne snage* was to be the Croat coat of arms, a *štit* (shield) with 25 white and "blood red" squares arranged alternately in five rows with a white square in the top lefthand (heraldic righthand) corner. The *štit* was to be painted on top of the starboard upper wing and on both sides on the underside of the lower wing. The ratio of *štit* size to wing chord was to be 1:5 for the upper wing and 1:2 for the lower wing. In addition, the *štit* was to be painted on the starboard side of the fin, the size ratio to be 1:2.

These orders must have been revised later in 1941. Photos of Croat Avias, e.g. 3302 and 3304, show that the ratio of *štit* size to wing chord was about 2:3 on both the upper and lower wings, and that there was also a *štit* on the port side of the rudder that occupied four-sixths to five-sixths of the chord.

The new serial numbers were at first to be painted in black characters 10 cm high on both sides of the fuselage, but photos of 3302 and 3304 show the number applied in black in characters half the depth of the fuselage. (Some of the other Croat aircraft reportedly wore white single-digit or two-digit white squadron markings on the tail, and Likso and Čanak illustrate serial numbers of various sizes painted in black or yellow on aircraft such as a Rogožarski R-100, Fizir FN and ŠIM X).

Yellow fuselage bands and yellow wing tip undersurfaces were introduced in 1942. These markings, together with the large black serial number and large *štit* on the port side of the rudder, are illustrated in colour by Likso and Čanak. Yellow cowling undersurfaces were introduced in 1943, but no available photo shows an Avia fighter with this feature. Likso and Čanak note that all yellow markings should have been painted over after July 20, 1944, but that Croat aircraft were still to be seen wearing yellow recognition markings after that date.

No available photo or drawing shows an Avia fighter wearing either the *štit* surmounted by an *Ustaša* "U" or the

trefoil (Zvonimir Cross) markings only introduced in February 1945.

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## Authors' notes

Neither Nenad Miklušev nor I claim our article is definitive. It is based only on the reference material to which we had access and information provided by friends who had access to further material. We thus owe thanks to, among others, Miroslav Khol at the *Letecke Muzeum* at Praha-Kbely, Petr Buchar, various members of the staff of the *Muzej Jugoslovenskog Vazduhoplovstva* in Beograd, Tihomir Likso, Predrag Miladinović, Miloš Milosavljević, and Stamatis Andreou. Special thanks are due to Jaroslav Zazvonil for the photos from his comprehensive collection that enabled us to clarify various points in respect of subtypes.

There is, incidentally, a remarkable dearth of photos of the Avia BH-33E-SHS wearing VVKJ markings considering that the aircraft was in service from 1929 through 1941.

Except in one specific case, Likso and Čanak refer in their book only to "partisans", but in 1941-42 these armed resistance groups were surely at least as often the Serb royalist *četnici* (Chetniks) of Draža Mihajlović as the communist/socialist *partizani* led by Josip Broz Tito.

## Modelling the Yugoslav BH-33

Neither the Avia BH-33 prototypes nor the PWS-A or the Avia BH-33E/S-SHS have as yet been kitted in any scale. This is strange in view of the resources that have been invested in kitting various obscure aircraft and "What-ifs" that never made it past the prototype or even drawing board stage. (But the West has generally overlooked the roles played in aviation history by aircraft designed and built in the Eastern European countries prior to World War 2.)

However, a 1/72nd scale model of an Avia BH-33 prototype or PWS-A can allegedly be built by crosskitting the KP Avia BH-21 with an Airfix Bristol Bulldog and scratchbuilding various parts. Photos and the scale drawings of the Avia BH-33.2 in L + K 10/84 would be the best references, but note that the drawings are not to 1/72nd scale as a caption claims.

The Avia BH-33E and BH-33E-SHS present a more serious challenge. Theoretically, the aircraft could be modelled using the wings from a KP Avia BH-21, the engine and nose from the Airfix Bulldog, and scratchbuilding the fuselage and various other parts with reference to scale drawings of an Avia Ba-33 (BH-33L). The problem would be making a separate cowling/fairing for each single engine cylinder. This would appear to be a task for very experienced and well equipped modellers.

But maybe scratchbuilding will not be necessary. There have recently been rumours that a leading Czech kit manufacturer is seriously considering production of an all-resin kit of the Avia BH-33/PWS-A or BH-33E. If so, small air force fans have something to look forward to.

For painting a model of an Avia BH-33E-SHS aka *Avija Jupiter*; Petrović and Bradić provide the following guidelines using Humbrol enamels.

### Czechoslovak Green scheme

*Khaki světlá*: either 2 x H30 + 2 x H31 + 2 x H10 + 4 x H34 or Agama C4 P (The mix produces a shade very close to H159 Khaki Drab with, perhaps, a drop of H34 White.)  
*Šedostríbrná*: "Agama 09" (This has to be a printer's error as the Agama catalogue lists 09M as tmavá modrá or Dark Blue, not Silver Grey. With a little pale grey added, H56 might well produce a suitable shade. Agama enamels are available from AGAMA, P.O. Box 83, 530 02 Pardubice, Czech Republic.)

### VVKJ obuhvatno zelena schemes

*Svetlo maslinasta* (Vert olive clair): either H81 + H78 or H151 + H26 + H34. *Tamno zelena* (Vert foncé/Vert lierre): 2 x H30 + 2 x H31 + 1 x H15. *Tamno zelena* (Vert foncé/Kaki foncé): 2 x H30 + 2 x H31 + 2 x H10. *Domaća maslinasto zelena*: 4 x H86 + 1 x HU 10 (or H97 instead of HU 10). *Svetlo plavo-siva*: H65 with a "drop" of HB6 Sea Grey Medium (see Aeroplan 2/90).

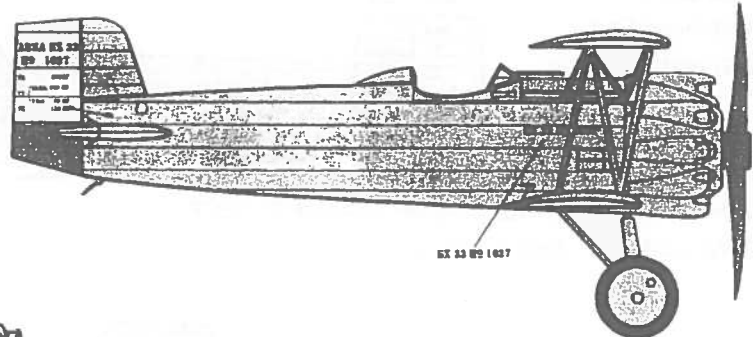
In 1/72nd scale, the *kosovski križ* wing roundels should be about 16.0 mm in diameter. Lift Here Decals in Serbia (e-mail: lifthere@eunet.yu) recently released a 1/72nd scale Royal Yugoslav Army Air Force Sheet No. 1 with markings for two Me-109E-3 s, two Hurricane Mk Is, a Me-108, Fieseler Fi 156 and Avro 671. The sheet includes five roundels 15.5 mm in diameter and correct in every detail. If the Lift Here Decals sheet is unobtainable, the only solution is to use the roundels that come with the Matchbox Hawker Fury. The green or turquoise areas of these will have to be painted over with Humbrol 109 Matt WW1 Blue. The two largest *kosovski križ* roundels for the Sword Hurricane Mk I (early) are just under 15.0 mm in diameter and a little too small. The two smaller roundels on the HitKit Breguet Bre 19 sheet are 17.0 mm in diameter and a bit too big, and the cross is incorrectly outlined in black instead of dark blue.

The *zastava* covering the rudder comprises three equally wide horizontal bands with the blue on top. The Humbrol

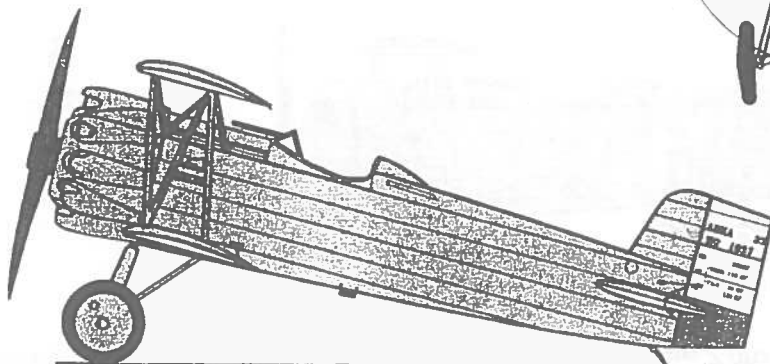
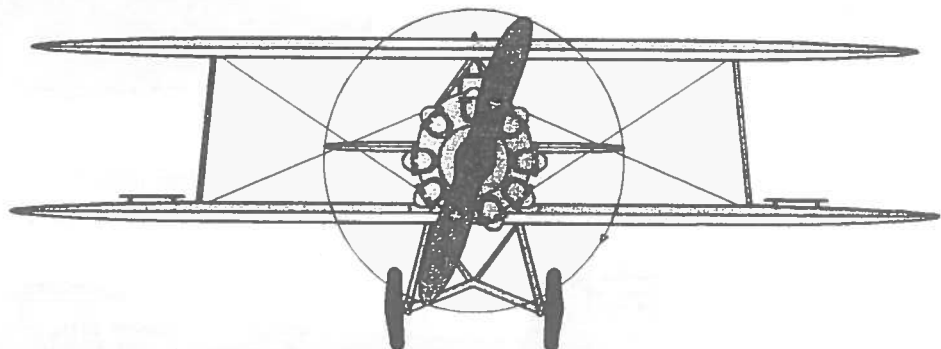
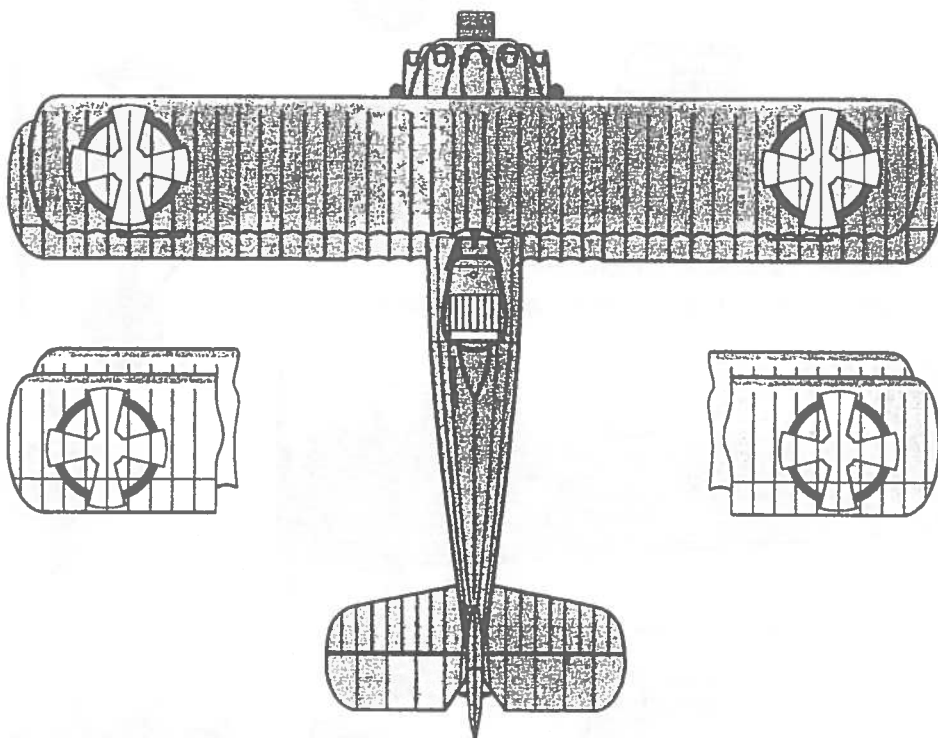
# Avia BH-33E SHS

АВИА БХ 33  
№ 1027

TEL 8000Y  
TT 6000. 210 KG  
TY 7000 20 KG  
TK 150 KG



БХ 33 № 1027



1/72 scale

traced by: Dragan Drašković

drawn by: Nenad Miklušev ©2001.



# Vazduhoplovne utakmice za pehar Nj.V. Kralja Aleksandra I

-Borbeni Aeroplani 6.septembar 1933.

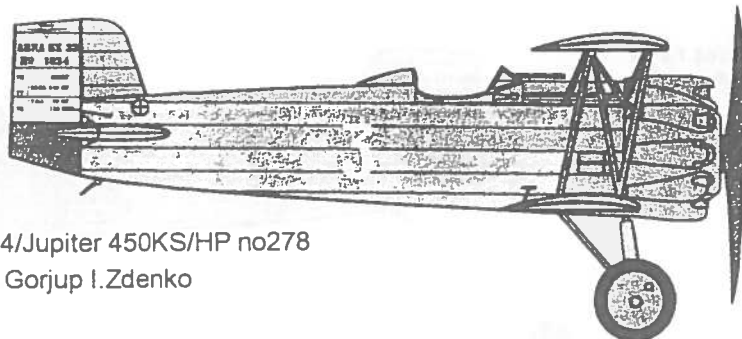
## H.M. King Alexander 1st air trophy for fighters, september 6th.1933.

Staza 274 km/Course 274 km

Novi Sad-Bela Crkva-

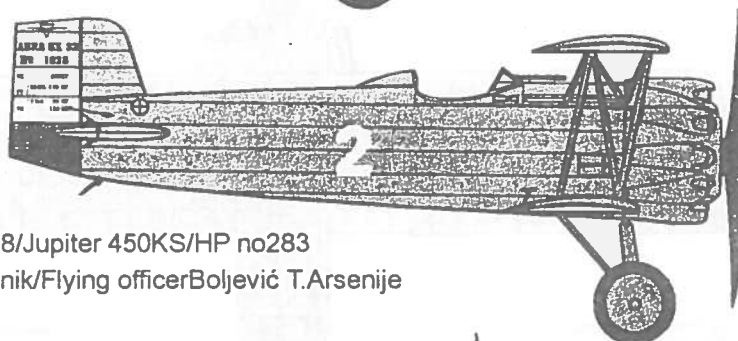
Beograd- Novi Sad

brzina/speed 247 km/h



Avia BH 33 E SHS No 1024/Jupiter 450KS/HP no278

Beli 3/White 3, pilot, Major Gorjup I.Zdenko



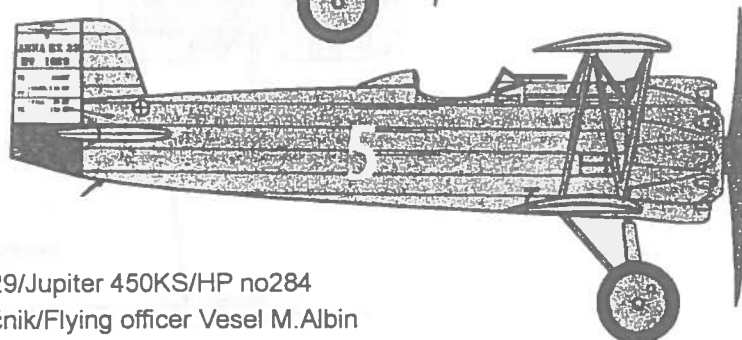
Avia BH 33 E SHS No 1028/Jupiter 450KS/HP no283

Beli 2/White 2, pilot, Poručnik/Flying officerBoljević T.Arsenije



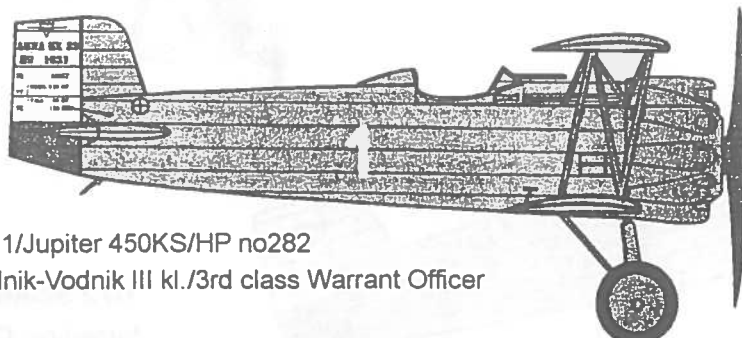
Avia BH 33 E SHS No 1026/Jupiter 450KS/HP no280

Beli 4/White 4, pilot, Poručnik/Flying officer Tešić J.Dobroslov



Avia BH 33 E SHS No 1029/Jupiter 450KS/HP no284

Beli 5/White 5, pilot, Poručnik/Flying officer Vesel M.Albin



Avia BH 33 E SHS No 1031/Jupiter 450KS/HP no282

Beli 1/White 1, pilot, Narednik-Vodnik III kl./3rd class Warrant Officer

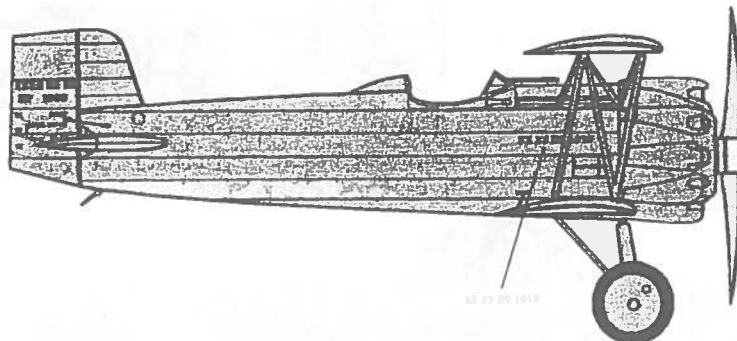
Dejanović M.Rade

6.plasiran/6th placed, Podnarednik/Sergeant, Gorup Z.Vladimir, (Avia BH 33 E SHS No1027/beli 6/white 6 je odustao posle 1 etaps.Does not finished the race.

# Avia BH-33E SHS

АВИА БХ 33  
№ 10

ТЛ	800 кг
ТТ	210 кг
ТМ	30 кг
ТН	150 кг

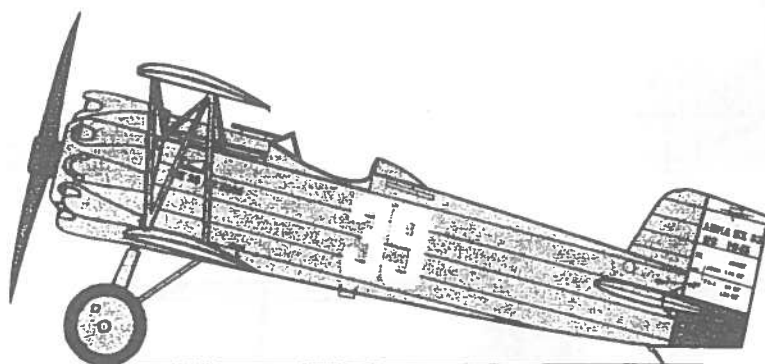
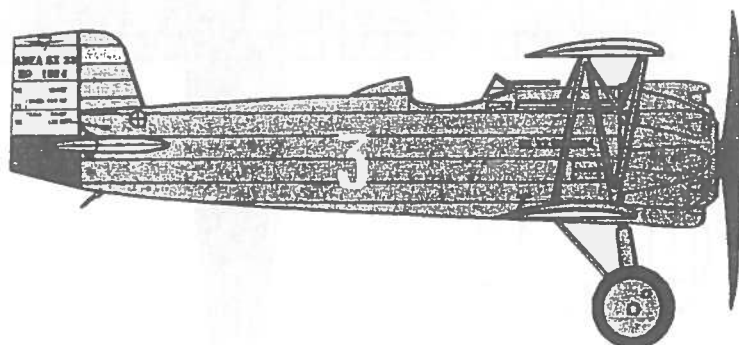


№ 33 10 1010



АВИА БХ 33  
№ 1024

ТЛ	800 кг
ТТ	210 кг
ТМ	30 кг
ТН	150 кг



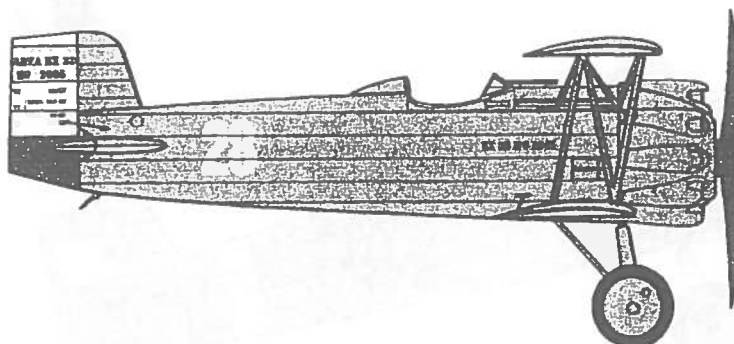
АВИА БХ 33  
№ 1045

ТЛ	800 кг
ТТ	210 кг
ТМ	30 кг
ТН	150 кг



АВИА БХ 33  
№ 2005

ТЛ	800 кг
ТТ	210 кг
ТМ	30 кг
ТН	150 кг

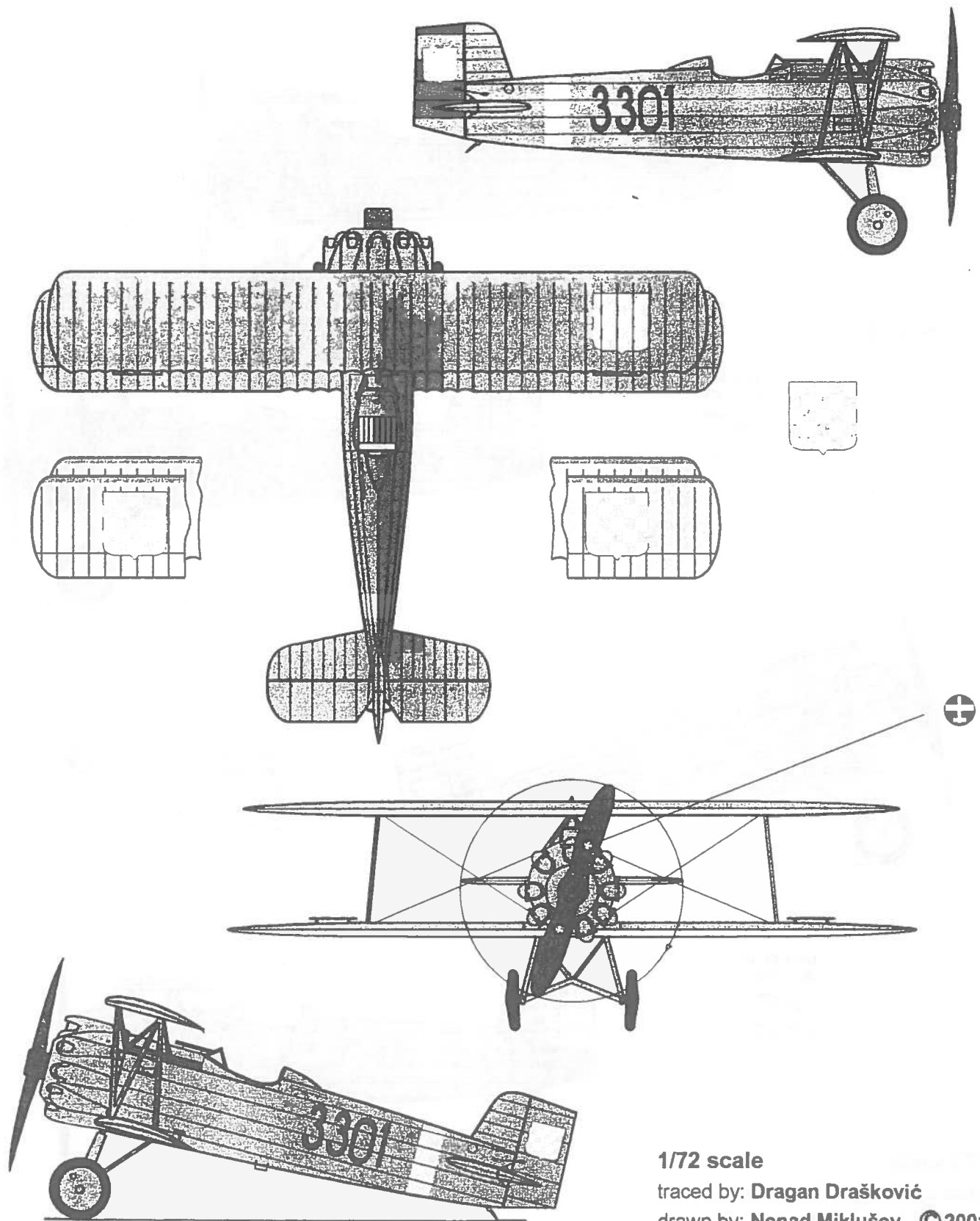


1/72 scale

traced by: Dragan Drašković

drawn by: Nenad Miklušev © 2001.

# Avia BH-33E SHS



1/72 scale

traced by: Dragan Drašković

drawn by: Nenad Miklušev ©2001.

enamels recommended in Aeroplan 2/90 are H109 Matt WW I Blue, H34 Matt White and H60 Scarlet.

The type identification "BH 33" in black Cyrillic characters on the fuselage sides should be about 1.5 mm high.

The type identification and serial No. arranged in two rows on the blue segment of the *zastava* on the rudder should be in black characters about 1.0 mm high; the black characters of the technical data on the white segment not more than 0.5 mm.

Blue/white/blue roundels for a model of an Avia BH-33E-SHS of the *Elliniki Vassiliki Aeroporia* can be taken from one of the decal sheets produced by Plastimodellismo Modelling Supplies, the lighter blue being the appropriate choice and those 15.0 mm in diameter about the right size. The sheet that comes with the PZL P.24F/G marketed by *Spoldzienia Rzemieslnicza Wieobranzowa* in Bytom, Poland, offers roundels 16.0 mm in diameter and the code Delta 126 in black. However, until a photo is found no one can say whether the code was applied in white or black, or what number would be correct.

Decals for an Avia fighter of the Croat *Zračne snage* or *Bojno zrakoplovstvo* may prove difficult to come by. Blue Rider Sheet BR 217 offers *štit* as well as trefoil insignia of various sizes but, judging only by the Squadron website

picture, the former may be too small for the wings although some should be suitable for the fin, where the *štit* should be 5.0 to 6.0 wide. The two *štit* on the HitKit Bre 19 sheet measure 11.0 mm and would appear to be the right size for the wings. The black serial No. or code on the fuselage of a Croat Avia fighter, e.g. 3302, 3304 or 3306, would have to be 8.0 mm high and the characters 3.5 mm to 4.0 mm wide. The shape of the individual characters may pose problems. The HitKit Bre 19 sheet offers the code 4534, but the characters measure 9.0 mm x 5.5/6.0 mm, which is far too big for 1/72nd scale.

Sid Napier (SAFCH #1521), Burgstrasse 2, CH-4107 Ettingen, Switzerland.

Photo captions (Photos on pages 35-36)

a. One of the Avia BH-33E-SHS fighters built in Czechoslovakia for the Yugoslav VVKJ.

b. Avia BH-33E-SHS No. 1045, white "39", at Novi Sad-Jugovićevo airfield on June 6 1937.

c. Avia "3302" of the *Skupina Cenić*, Croat *Zračne Snage*, in June/July 1942.

d. Avia "3304" of the *Skupina Cenić*, Croat *Zračne Snage*, in June/July 1942.

## Turkish Spitfires

Hal Ahrens

Turkey sat on the fence throughout most of WWII, maintaining ties with Britain while signing a non-aggression pact with Germany. Turkey eventually did declare war on Germany, on 1 March 1945, but continued to show little inclination to support the allies cause. However, Britain was convinced that Turkey would protect its own territory and that a strong Turkey was in Britain's best interest. As a consequence, several different types of British aircraft were supplied to Turkey during the war, including a number of Spitfires.

This association with Spitfires led to the Turkish Air Force purchasing surplus Spitfires after the end of the war.

**SPITFIRE I:** Turkey ordered 14 in 1938. Only two were actually shipped, but they never reached Turkey being taken over by the RAF in the Middle East. The remainder MkIs were also taken over by the RAF before delivery. However, Turkey did receive three Spitfire I: RAF L1066, was on its way to Poland, but when Poland fell to the Germans, it was diverted to Turkey where it was assigned serial 2901. Two additional Spitfire Is, ex RAF P9566/9567, were ordered by Turkey in May 1940 and were delivered as serials 2902/2903.

**Spitfire Vb:** Turkey received 30 Spitfire Vb in March 1943. They received serials 5501/5530. An additional nine were

delivered in 1944 as 5531/5539.

**Spitfire Vc:** In 1944 Turkey received three Spitfire Vc reconnaissance versions which were serialised 5801/5803. Then, in 1945 Turkey received 71 more Spitfire Vc, of which 69 were serialised 5701/5769. The two remaining aircraft retained their RAF serials EP882 and BR644.

**Spitfire LF IXe:** With the end of WWII a large number of Spitfires were declared surplus to RAF requirements. In 1946, Turkey began to accept delivery of 170 Spitfire LF IXe. Most of these aircraft came from maintenance units such as No. 39 MU at RAF Colerne where they had their wings clipped and were fitted with wing-mounted bomb racks. These aircraft received the serials 6201/6370.

**Spitfire PR XI:** Turkey received one in 1946 which was serialised 5851.

**Spitfire PR XIX:** Four were delivered to Turkey in 1946 serialised 6551/6554.

Harold Ahrens (SAFCH #216), 3421 La mesa Dr., Hayward, CA 94542.

[Editor's note: PM Turkey's 1/72 scale kit of the Turkish Spitfire Vb '5512' is available from the SAFCH Sales Service.]

# The Aircraft of Uruguayan Military Aviation

## The Escuela Militar de Aviacion - Part 1: 1916-1919

Pedro Otto Cerovaz, Fernando Diaz, & Eduardo Luzardo

**Introduction:** The former Escuela de Aviacion Militar which had been established at Los Cerrillos on March 17, 1913, ceased its activities in July of the same year when the government decided not to renew the three-month contract of the flight instructor, the Frenchman, Marcel Paillette.

During 1915, four Army officers were sent abroad for flight training. First Lieutenant Juan M. Boiso Lanza and 2nd Lt. Adhemar Saenz Lacueva became pilots in Chile, while 1st Lt. Cesareo L. Berisso and 2nd Lt. Esteban Cristi received their "wings" in Argentina.

On November 20, 1916, the Escuela Militar de Aviacion was founded at Paso de Mendoza on the outskirts of Montevideo, the capital of Uruguay. Lt. Boiso Lanza was appointed its first Director and all four pilots became flight instructors. Flight training began effectively during 1917 with nine junior Army officers as trainees and six Argentine-built six aircraft, one Henri Farman and five Castaibert.

**Castaibert monoplanes:** All five airplanes, intended as basic trainers, were built by Paul Castaibert in his workshop at Villa Lugano, Buenos Aires. Being similar in design, but powered by different engines, they were referred in the records and identified by their power output: 50, 60, 70, 80, 100 hp.

First to arrive was the "60 hp", which was transported by boat to the port of Montevideo and assembled on June 19, 1916. The next day it was demonstrated in front of government authorities. There exists a photo of this aircraft captioned "Villa Lugano 1916" and showing the airplane just before delivery wearing cockades under the wings. No serial number was assigned and its ultimate fate is unknown.

The "100 hp" was flown from Buenos Aires on July 18 with 1st Lt. Boiso Lanza at the controls. Probably a three seater, it was in service until circa 1919 but never as assigned a serial number.

The remaining three aircraft were delivered by boat, being received on January 20, 1917. The "50 hp" was easily recognizable from the others since it was the only one with the fuselage aft of the cockpit not fabric covered. No serial was assigned and its fate is unknown after circa 1919.

The "70 hp" was intended for "aerobatics". Until circa 1925 it carried serial number '2' on the side of the fuselage. This was then replaced by the name 'Cap. Boiso Lanza'. It is preserved at the Museo Aeronautico, Montevideo, and is now in the process of restoration.

The "80 hp" became famous when Lt. Berisso, still in training, won the air race between Buenos Aires and Mendoza, Argentina, on July 17-19, 1916. It remained in service until circa 1925, first carrying the serial number '1' on the side of the fuselage which was later replaced by the phrase "RAID B.A.-MENDOZA". This aircraft was preserved and in 1953 it was put into flight condition and flown by Maj. Alfredo Lamela on March 17, to commemorate the 40th Anniversary of the Escuela de Aviacion Militar. It is currently on display at the Museo Aeronautico.

It is almost certain that all five monoplanes wore under wing cockades of various sizes and the fabric surfaces were painted in natural dope. The last two on strength during the early twenties wore the standard Artigas flag painted on rudders. (General Artigas is the Uruguayan national hero.)

**Farman:** This was a two-seat biplane with tailboom merging onto single rudder. It was powered by a rotary 50-hp Gnome-Omega engine. Intended for use as a primary trainer, it was built at the Escuela Militar de Aviacion at El Palomar, Buenos Aires. On July 11, 1917, it was flown to Montevideo by Lt. Berisso, thus becoming the only aircraft of this type to cross the Rio de la Plata. It is known to have been flown at least until 1919, but its ultimate fate remains obscure.

Similar to the previous twin-rudder Farman of the former Escuela de Aviacion Militar (see SAFO #98) this machine carried the name "EL AGUILA" on the front elevator. On August 25, 1917 (Uruguay's Independence Day) it was photographed from the left side showing the national flag on the rudder. There exists another photo taken at Paso de Mendoza airfield at a later date which shows the current Uruguayan Air Force cockade on the right side of the rudder (no cockades were painted on the wings). The fabric surfaces were all in natural dope.

**Sources:** "Historia de la Fuerza Aerea", Volume One (1995), 1st Lt. (Av)(R) Juan Maruri.

Eduardo Luzardo (SAFCH #1383), Picardia M.267 S.34, 91001 Barros Blancos, Uruguay.

Drawings on the next three pages. The fabric on all aircraft is doped and appears as a light yellow shade. All struts are natural wood. The cowling of the Castaibert is black and the forward part of the fuselage is varnished wood. The Uruguayan flag on the Farman is the standard white with light blue stripes and a yellow star.

## The Bf-110 in Spain

Hal Ahrens

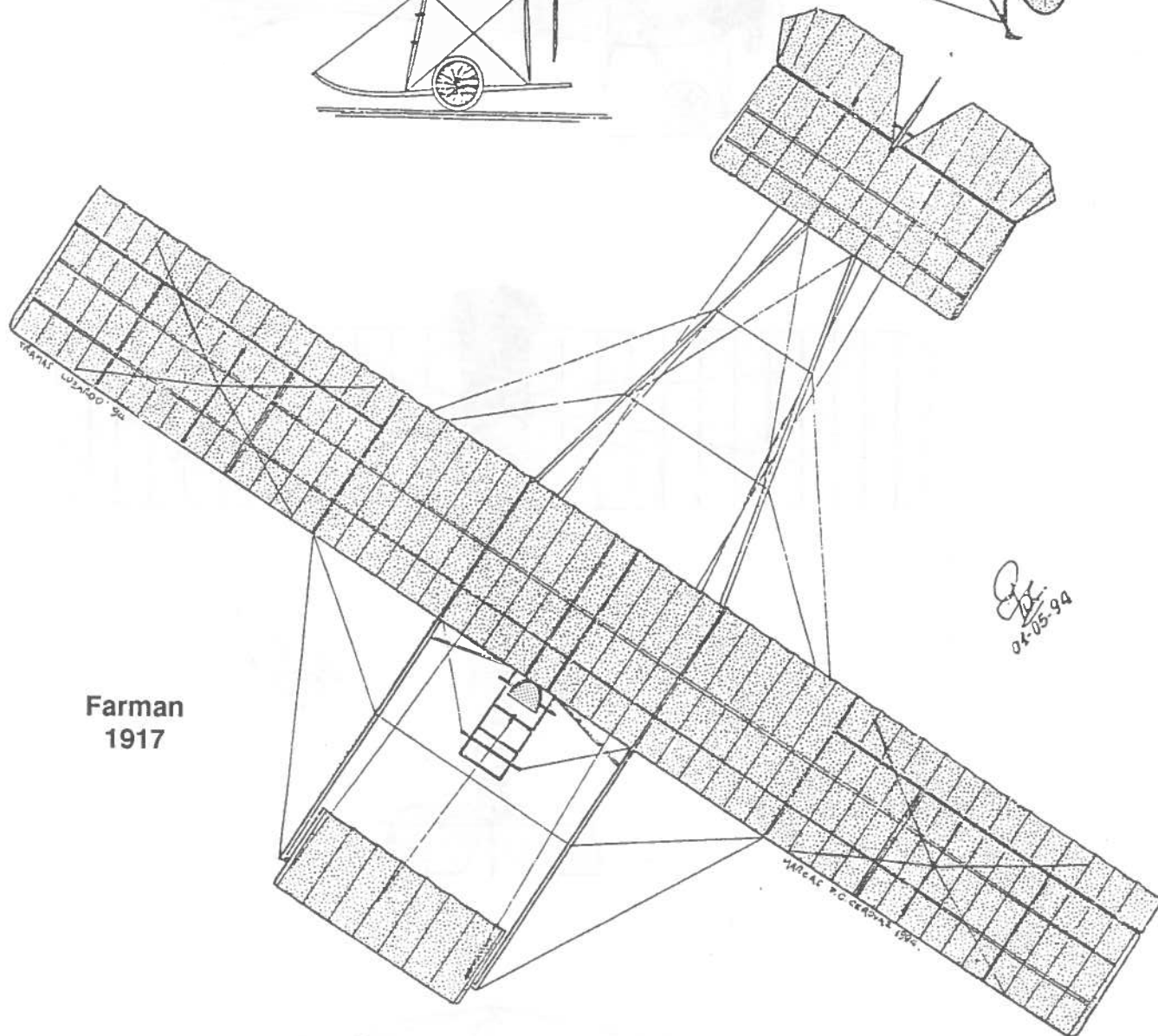
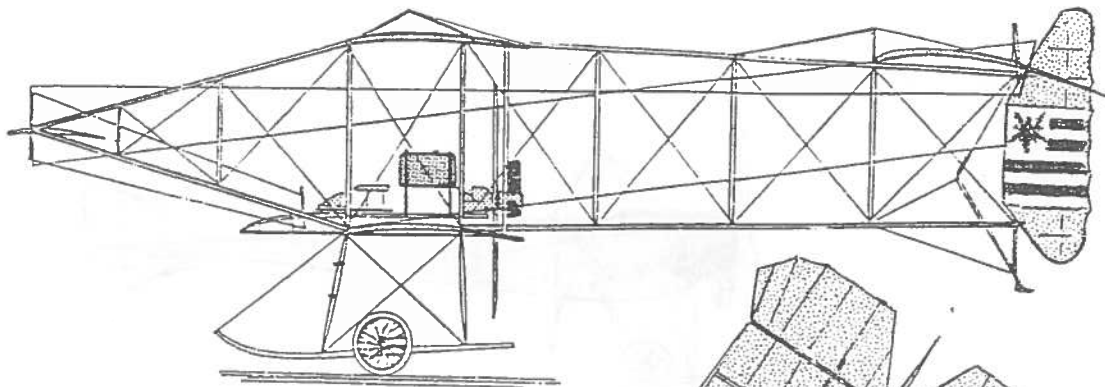
Soon after the last of four Bf-110A-0 pre-production aircraft were completed in April 1938, it was apparently decided to test the type under combat conditions in Spain. During the interim, these aircraft were tested by the RLM as V4, D-AISY, w/n 910; V5, DAAHI, w/n 911; V6, w/n unknown; and V-7, w/n 917.

Whether these aircraft were actually sent to Spain is

unknown, but it was reported that they were. However, it was also reported that they arrived after the Spanish Civil War had ended. This would indicate that they did not arrive in Spain until after 1 April 1939. Perhaps one of our reader has more information.

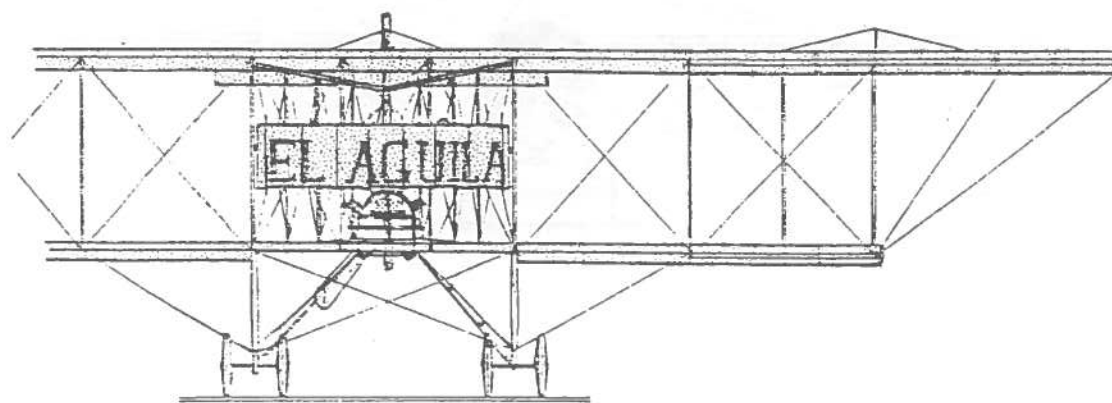
Harold Ahrens (SAFCH #216), 3421 La Mesa Dr., Hayward, CA 94542.

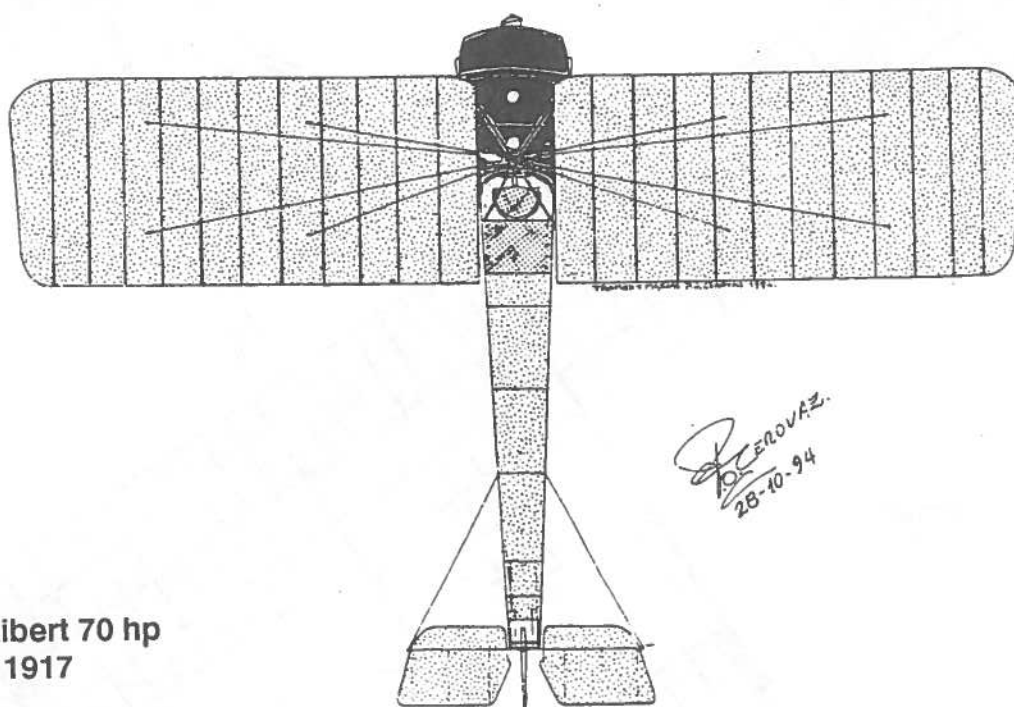
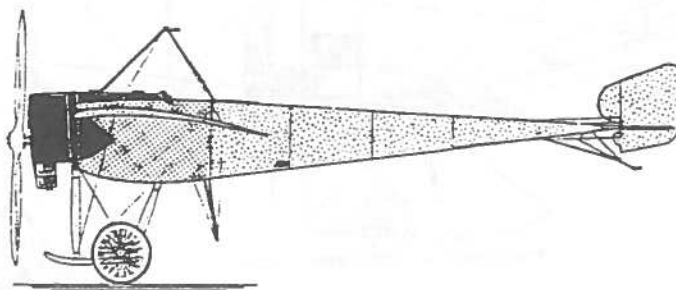




Farman  
1917

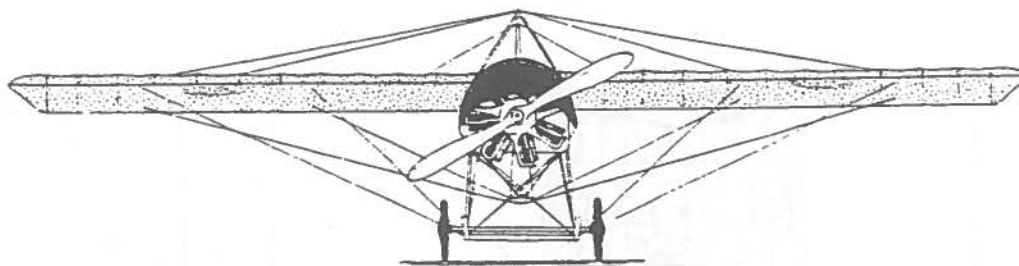
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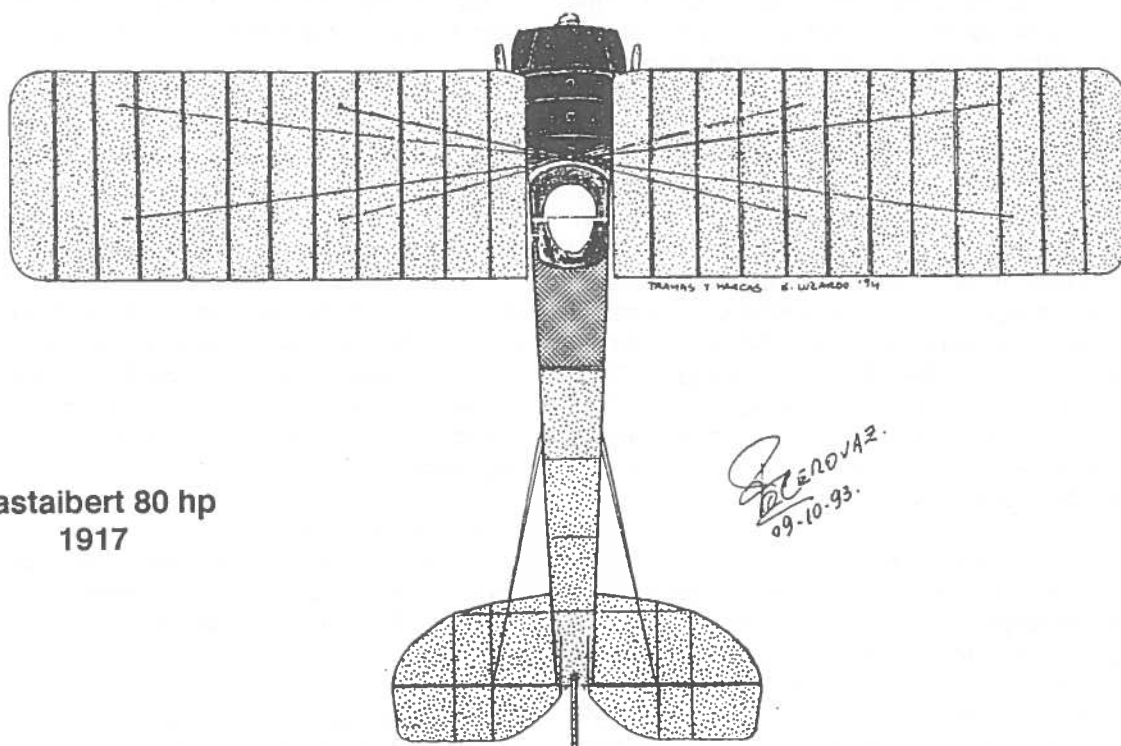
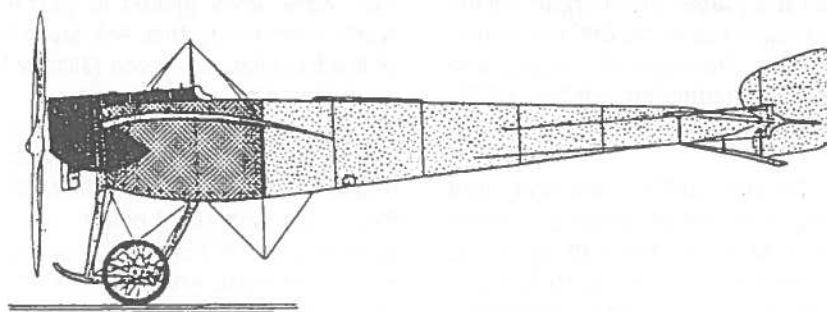




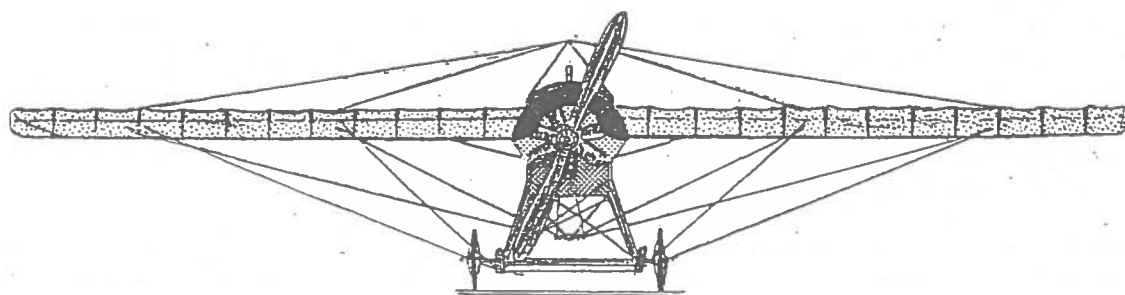
*P. CEROVÁZ.*  
28-10-94

**Castaibert 70 hp  
1917**





**Castaibert 80 hp  
1917**



# The Paraguayan Air Force Aerobatic Team

Antonio Luis Sapienza Fracchia

During the 1970's, the Brazilian Air Force donated 29 North American T-6D/G to its Paraguayan counterpart. All the T-6Gs were assigned to the Grupo Aéreo de Entrenamiento y Transporte (GAET: Training and Transport Air Group) and the T-6Ds to the Grupo de Entrenamiento Táctico (GET: Tactical Training Group), which was the only combat group of the FAP.

Since the arrival of the Texans, GAET pilots and flight instructors started practicing a series of evasive combat maneuvers, and in 1972 the idea of founding an aerobatic team took shape, thanks to the initiative of Capt. PAM Darío Maciel, Capt. PAM Carlos Giménez, Cap. PAM César Ríos, Capt. PAM Francisco Zarza, among others. In that year, there weren't many Texans available to be exclusively assigned to an aerobatic team, so the then Commander in Chief of the FAP, General Vicente Quiñónez did not authorize the formation of the team, although he allowed some pilots to perform aerobatic maneuvers.

It was not until 1974 that Gen. Quiñónez finally authorized the foundation of the Primera Escuadrilla Aérea de Demostración, which received the official name of "Ará-Sunú" (a Guaraní word meaning "The Sound of Thunder"). Four N.A. T-6D were originally assigned to the group and were painted in a very colorful design, very similar to the Brazilian Air Force Esquadrilha da Fumaça. The founding Ará-Sunú members were: Major PAM Carlos Giménez, Capt. PAM César Alfonso, Capt. PAM César Ríos, Capt. PAM Aurelio Neón Aquino, Capt. PAM Francisco Zarza, 1st. Lt. PAM Porfirio Figari, 1st. Lt. PAM Julio Dioverti and Lt. PAM Carlos Jara. The first demonstration was on December 10, 1974. Then, in 1975, with the arrival of more Texans from Brazil, two more T-6s were assigned to Ará-Sunú.

There were many aerobatic maneuvers demonstrated by the team, which included the following: (1) Looping in delta formation with wing detachment, with five aircraft. (2) Looping in diamond formation, with four aircraft. (3) Roll in diamond formation, with four aircraft. (4) Looping in column with diamond exit, with four aircraft. (5) Looping with wing exchange, with four aircraft. (6) Looping in diamond formation, exit in line and cross detachment, with four aircraft. (7) Star and the death crossing, with four aircraft. (8) Wide roll, with five aircraft.

Apart from the maneuvers mentioned, the aircraft also performed some individual figures such as low altitude flights at full speed, flat spins, inverted flying, the falling leaf, the mirror (two aircraft flying one above the other, with the upper aircraft in inverted position), eights, etc.

There were always five aircraft flying in each demonstration, and the sixth one was always kept in reserve, to substitute any of them in case of maintenance problems. The aerobatic skills of the Ará-Sunú pilots were excellent, and the aircraft were in perfect conditions. In the five years of life of this team, no accidents were reported.

Many demonstrations were performed by Ará-Sunú during its five years of existence, both in Asunción and in many other cities in Paraguay, specially on holidays like Paraguayan Independence Day (May 15), Asunción Foundation Day (August 15), and the Festivity of the Virgin of Loreto,

Patroness of the Air Force (December 10). Unfortunately, they were never invited to perform outside Paraguay. It is worth mentioning that Ará-Sunú received technical support of the Brazilian Air Force Military Mission in Paraguay, both in training and maintenance.

The last demonstration was performed on Sunday December 9, 1979 at Ñu-Guazú Air Force Base, near Asunción. At that time, the Ará-Sunú members were: Capt. PAM Julio Dioverti (Leader), Lt. PAM Rolando Lanik (Rear position), Lt. PAM Eladio Paredes (Left Wing), Lt. PAM Ramón Benítez (Soloist) and Sub-Lt. PAM Carlos Woroniecki (Right Wing). Although all six aircraft were still in excellent flying condition, a technical committee decided to ground the team due to the age of the planes. No other planes were available to replace the Texans, so Ará-Sunú just vanished, to the big sorrow of all its members, former members, and the general public.

The six former Ará-Sunú Texans were reassigned to the GAET once again, but at the end of 1980, they were withdrawn from use. Almost all former members of the team were transferred as combat pilots to the newly formed Grupo Aerotáctico (GAT: Air Tactical Group) which received nine new Embraer EMB-326/AT26 Xavantes.

Then, it was in 1993 that a group of former members of Ará-Sunú, with the permission of the then Commander in Chief of the FAP, Gen. Cesar Cramer, decided to paint the last two Texans still in service with the team colors, in order to perform some aerobatics in the Air Force festivities. They are still active in the FAP nowadays, but they only fly occasionally.

## Acknowledgements

The author would like to thank Col. (Ret.) Rolando Lanik and Col. (Ret.) César Ríos, both former members of Ará-Sunú Aerobatic Team, for the information and pictures used in this article

Antonio Luis Sapienza Fracchia (SAFCH #1160), Casilla de Correo N 2721, Asunción (1209), Paraguay. e-mail: [asapienza@ccpa.edu.py](mailto:asapienza@ccpa.edu.py).

## Photo Captions (Photos on page 2.)

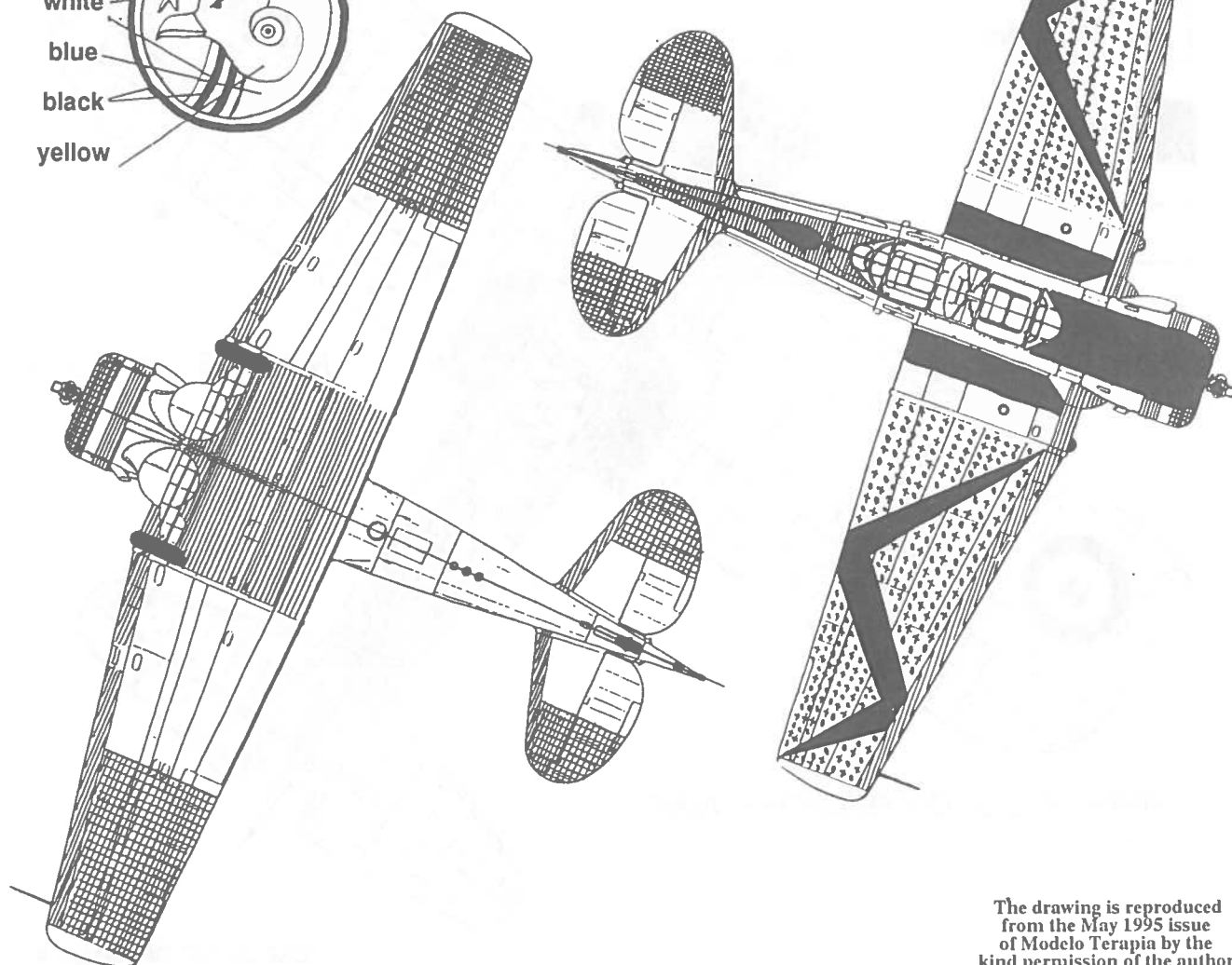
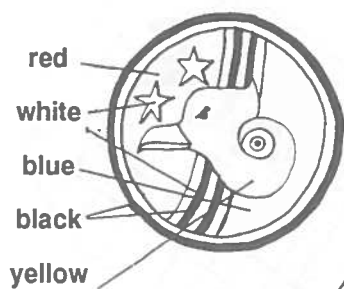
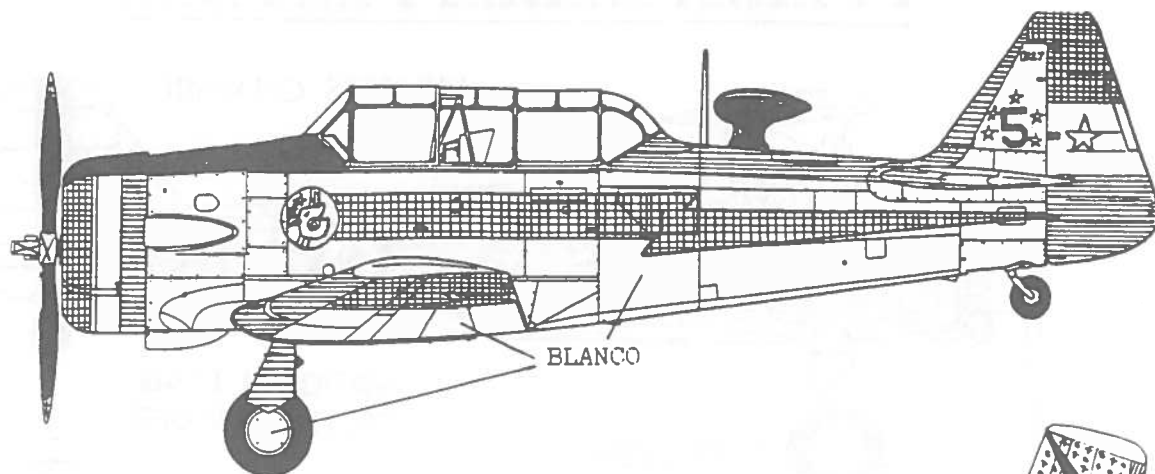
Top: The last two Texans in flying condition in the FAP painted in Ará-Sunú colors in 1993 at Ñu-Guazú AFB. (A.L. Sapienza)

Bottom: Ará-Sunú official emblem used by the pilots on their flying suits. The eagle's head is white with yellow beak and wings with black details. The lightning flash is white/red/white. The sky is light blue with white clouds and the aircraft are black with white outline. The "Ara Sunu" is red and the entire emblem is surrounded with dark blue/white/red rings. (A.L. Sapienza)

## Color Guide.

Aircraft is overall white with the upper surface of the wing painted yellow with black zig-zag and a blue leading edge. The wing walk and antiglare panel are black. The frames on the cockpit and the area behind the cockpit and the leading edge of the vertical stabilizer are blue. The cowl is red/white/blue (from the front). The horizontal stabilizer is red/white/red with blue leading edges. The under surface of the wing is red/white/blue/white/red. The wing tips are white. The rudder is red/white/blue (from the top) with a yellow star on the white field. The aircraft number is black.

North American T-6  
Primera Escuadrilla Aerea de Demonstracion  
ARA-SUNU  
1975

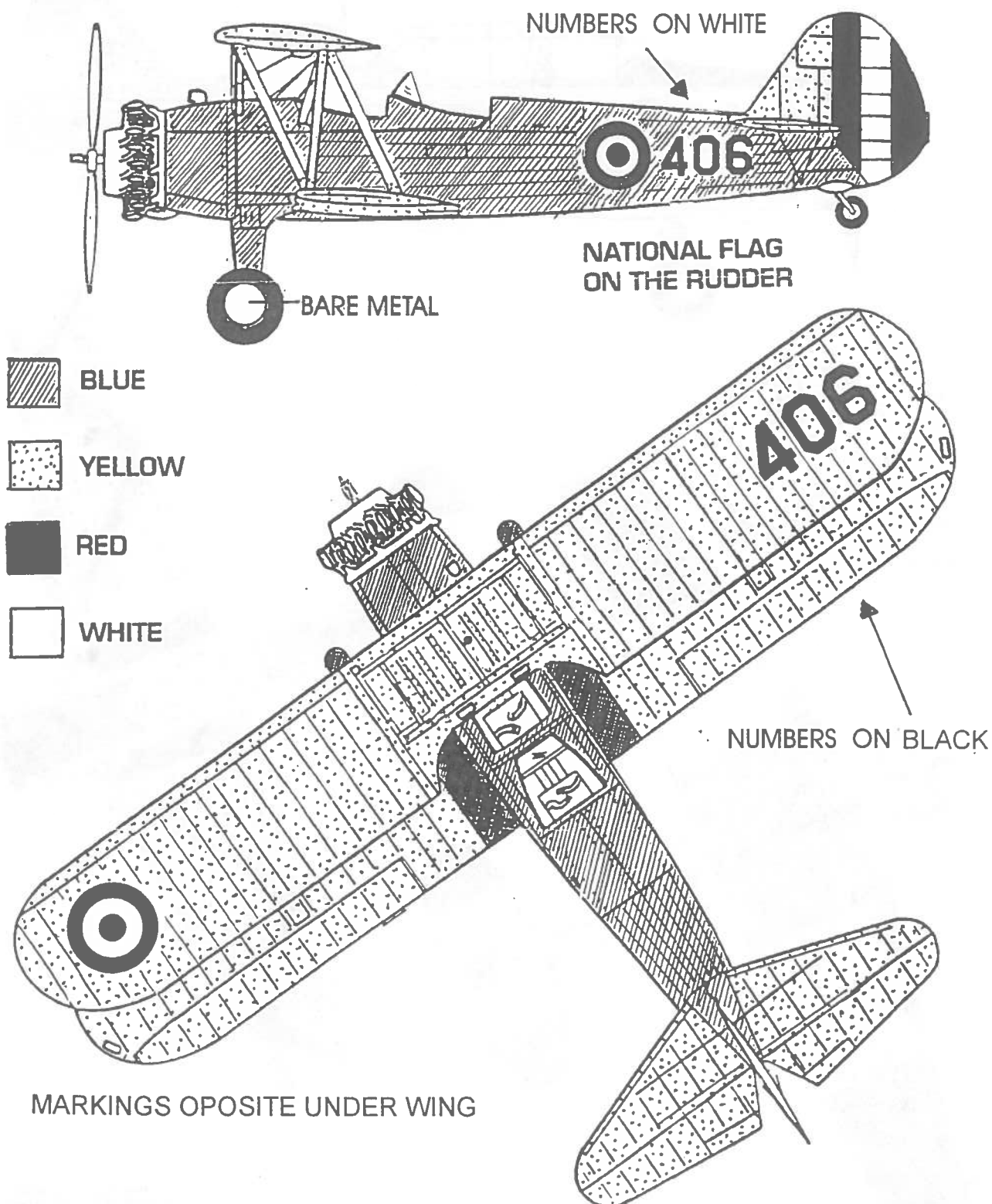


The drawing is reproduced  
from the May 1995 issue  
of Modelo Terapia by the  
kind permission of the author.



# Stearman PT-17

## FUERZA AEREA PERUANA

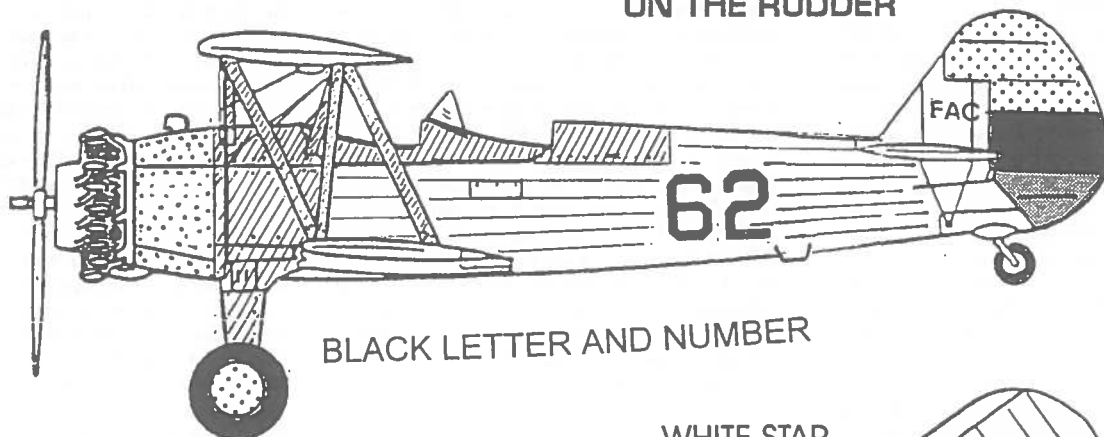


CAP JORGE DELGADO P.  
(SAFCH # 862)

# Stearmman PT-17

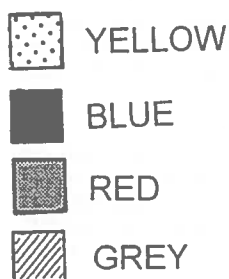
## FUERZA AEREA COLOMBIANA

NATIONAL FLAG  
ON THE RUDDER

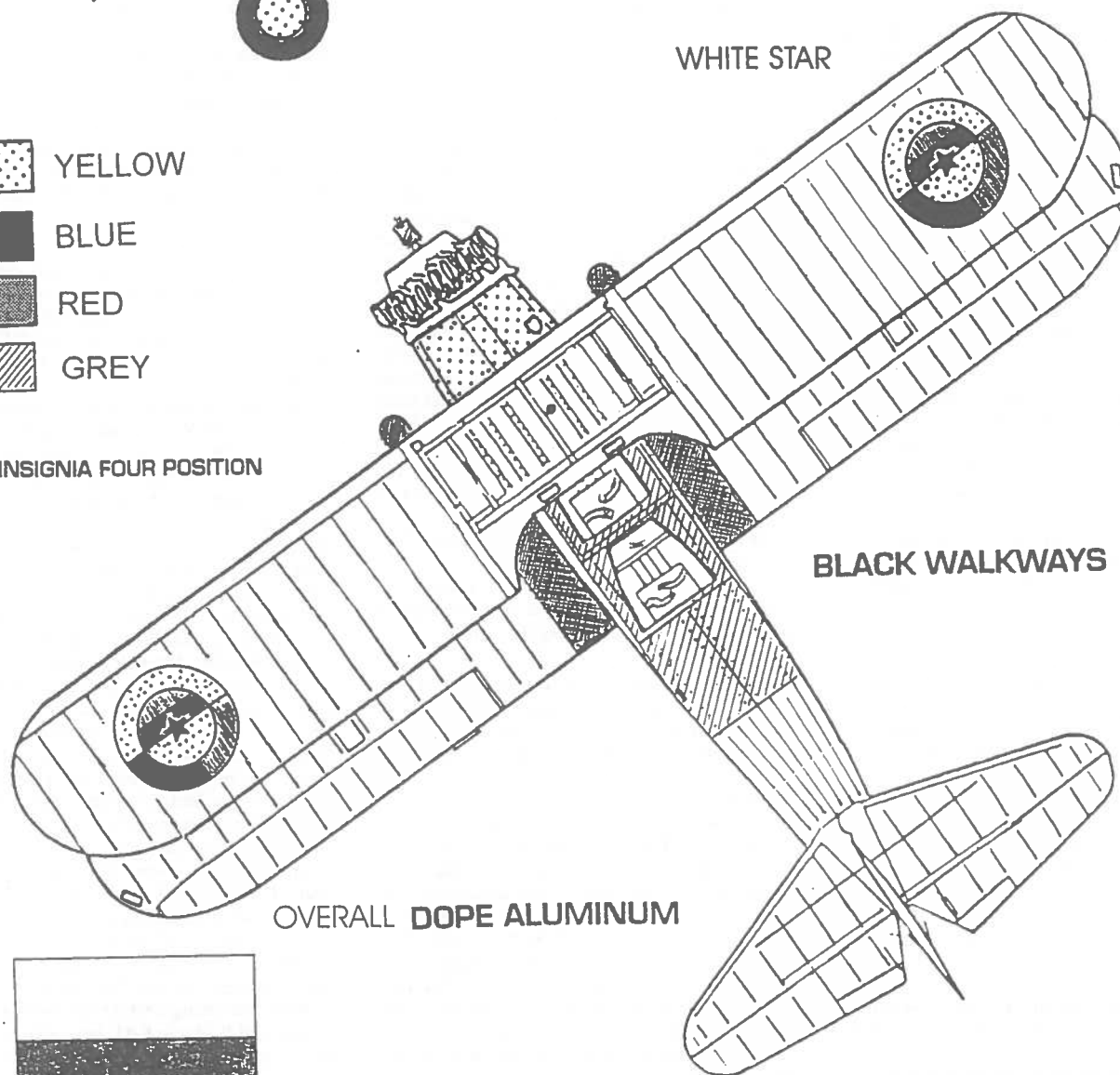


BLACK LETTER AND NUMBER

WHITE STAR

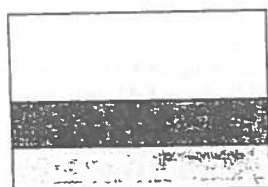


INSIGNIA FOUR POSITION



BLACK WALKWAYS

OVERALL DOPE ALUMINUM



COLOMBIA

CAP JORGE DELGADO P.  
(SAFCH # 862)

**The Cutting Edge of the Air Force: Tengah Air Base, A Pictorial History 1939-2001**, Y. K. Goh. Available from the SAFCH Sales Service.

This book was written to celebrate the 30th anniversary of Tengah Air Base under the Singapore flag. It traces the history of Tengah as an RAF station before WWII up to 2001. The 114-page A-4 size book contains over 530 photos (mostly in color) well reproduced on high-quality glossy paper. The text is entirely in English.

The first chapter on "The RAF Years (1939-1971) is broken down into "Defending the Island Fortress", "An RAF Station Again", "Malayan Emergency", "The Malayan Auxiliary Air Force", "The Lull before the Storm", "Indonesian Confrontation", and "Singapore Independence - Doing it Alone". The other chapters are: "Flying Start (1971-1981)", "Flying High (1982-1991)", "The Cutting Edge of RSAF (1992-2001)", "Units in Tengah Today", "Tengah Spirit", and "The Years Ahead". Appendices are: "Flying Units Stationed in Tengah Air Base (1939-2001)", "The Black Knights", "Who's Who in Tengah", and "Historical Buildings and Landmarks in Tengah Air Base".

Since this is a history of an air base, it is natural that many of the photos are of the base and its buildings, the people who were stationed there, and the aircraft that flew from there. Besides photos of RAF, RAAF, RNZAF aircraft stationed at Tengah and photos of USN aircraft visiting Tengah, there are numerous photos of each type of aircraft serving with the RSAF from the first Cessna 172H to the latest F-16. In between, there are photos of RSAF Strikemasters and Hunters carrying the initial red/white/red roundel insignia; Hunters, Skyhawks, F-5F, C-130 Hercules, & Lockheed T-33A in the Ying/Yang" insignia; A-4s in the color scheme of the Black Knight Aerobatic Team; and A-4, C-130, E-2C Hawkeye, and F-16 in the low-vision-head insignia. (I'm sure I overlooked a few variations.)

[Editor: The author and SAFCH member, Yong Kiat Goh, has provided the SAFCH with 2 copies in hardcover and 4 copies in softcover. His recommended price for sale through the SAFCH Sale Service is \$25.00 for the hardcover edition and \$10.00 for the softcover edition. While books on the history of air bases are probably an acquired taste, this one has so much information on the Singapore Air Force that it would make an excellent addition to the library of any enthusiast interested in military aviation in South East Asia.]

**LeR 3**. By Kalevi Keskinen and Kari Stenman. Suomen Ilmavoimien Historia #18. Available from Kari Stenman, Mainikitie 14A6, 02320 Espoo, Finland. Payment by credit card. It retails in Finland for 32 Euros.

The well-known Finnish team of Keskinen and Stenman continue their new series on Finnish unit histories with the story of LeR 3 (Lentokentäny 3 - Air Regiment 3). In his letter accompanying the review copy, Kari Stenman writes, "Unofficially known as the 'Messererschmitt regiment' it was the most successful Finnish unit with over 1000 Soviet aircraft claimed shot down. The pilots claimed a good number of Spitfires and Mustangs destroyed, but recent research has proven the former to be either Yak-1s, -7s or LaGG-3s and the latter Yak-9s."

The text of this 144 page book is in Finnish, but the photo captions are bilingual (Finnish and English) and there is a 10 page English summary. In any case, the 240 photos, 17 pages of tables, and 34 color

side-view drawings need no translation.

The 15 pages of aerial victories is particularly impressive listing the date, time, location, squadron and name of the victor, serial number of his aircraft, the type of Soviet aircraft shot down, and its unit (if known). A one-page table lists LeR 3's operational losses with date, time, serial number of aircraft lost, squadron and name of the pilot and his fate, and the circumstances of the loss.

However, as with all the books in this series, the excellently-reproduced photos take "pride of place". I am continually amazed by the number of previously-unpublished photos of WWII Finnish aircraft the authors find. Apparently, the Finnish Air Force, unlike the USAAF and USN, had no restrictions on photographing at airfields. [Ed: What a lose. Imagine if we had as many photos of USN Buffalos as we have of Finnish Buffalos.] Although LeR 3 is mostly known for their Bf 109s, they also operated Fokker D.XXI, Curtiss Hawks, Fiat G.50, Brewster Buffalos, as well as small numbers of other aircraft (Hurricane, Caudron CR.714, Pyry, Viima, I-152, Tiger Moth, Myrsky, Ripon, Fokker C.X, Tuisku, Stieglitz, & Blenheim). All are illustrated with the number of photos proportional to the numbers used by LeR 3.

Of the many new photos in this book, I will mention only three: (1) A top view of BW-352 in a striking winter-camouflage scheme consisting of irregular intense white splotches covering almost all of the upper surfaces and separated by thin regions of the original dark camouflage. This would make a very spectacular model. (2) BW-370 up to its belly in water after a forced landing in Lake Immolanjärvi with the rescuers arriving in a canoe. A good subject for a diorama. (3) Brewster BW-368 being refuelled at an unique "post-and-beam" system that I've never seen before (although several other photos in this book show Bf 109s refuelling at the same type of station. The small shack alongside appears to be just big enough to hold the pump. Was the fuel stored underground? This would make a nice way to display a model of a Finnish Buffalo. LeR 3 is another excellent book by Keskinen and Stenman. It can be unreservedly recommended to everyone interested in Finnish aircraft and to anyone who just likes photographs of aircraft.

Review copy provided by SAFCH member Kari Stenman.

[Ed: See Kari Stenman's comments in the letter department of this issue on the national insignia used by Finnish aircraft during the Lapland War.]

**Grumman S-2 Tracker & Turbo Tracker**, Jorge F. Nunez Padin, Serie Aeronaval N° 14. Jorge F. Nunez Padin, Laspiur 1801, B8003BJI Bahia Blanca, Argentina, Web Site: [www.fuerzasnavales.com](http://www.fuerzasnavales.com). E-mail: [marauder@satlink.com.ar](mailto:marauder@satlink.com.ar)

SAFCH member, Jorge Nunez, continues his excellent series on Argentine aircraft with the story of the Grumman Tracker in Aeronaval service. If you are familiar with this series, you will not need to be reminded of the excellence of the research and the high quality of the color photos which, reproduced on heavy glossy paper, are of "Kodak" quality. The text and photo captions are entirely in Spanish, but a one-page English summary is provided. [Ed: This summary covers only the operational history of the Argentine Trackers; I hope that Jorge will consider adding a translation of the "Colores & Insignias" chapter for the modeler.]

The chapter titles are: (1) Historia, (2) Operaciones en Malvinas, (3) Técnica, (4) Historias Individuales, (5) Colores & Insignias, and (6)

English Abstract. If you're still hesitant about the Spanish-language text, try you're High-School Spanish on this excerpt from the "Colores & Insignias" chapter: "En Noviembre de 1978, los tres Trackers de la Fuerza de Tareas 42 recibieron un inusual camuflaje táctico en Marrón (aprox. FS30219) con manchas irregulares en Verde (FS34130) cuyo patrón era diferente para cada avión." For us Spanish-language challenged, there are 38 b&w photos and 19 color photos (mostly half-page size) and 4 color side-view drawings.

One reason modelers have shied away from Aeronaval aircraft is the unavailability of decals for the unusual and complicated national insignia carried on Argentine naval aircraft. However, since about 1986, Argentine Trackers have carried a color scheme of Gris Medio (FS26176) upper surfaces with Gris Claro (FS26307) lower surfaces. The national markings are limited to the usual blue/white/blue rudder and elevators and Gris Claro anchors on the upper surfaces of the wings - all within the ability of the average modeler. The more adventuresome modeler, may want to try a conversion to the Turbo Tracker, but the rest of us will probably be content to wait for someone to produce a conversion set.

The Grumman S-2 Tracker & Turbo Tracker, N° 14 in the Serie Aeronaval is another great volume in this outstanding series. It is highly recommended to anyone interested in Latin American aviation. [Ed: This volume and other volumes in this series are available from the SAFCH Sales Service.] Review copy provided by SAFCH member Jorge Nunez.

**Green Splotches - White Splotches: Another look at USAAF Camouflage 1942-1943**. Ian Baker's Aviation History Colouring Book #44. Drawings & Notes for Modellers, Illustrators & Enthusiasts. Ian K. Baker, 31A Mercer St., Queenscliff, VIC 3223, Australia.

"There can be a perception on the part of some that the Olive Drab-Neutral Gray years of the USAAF provided little of interest or variety beyond a few personal and formation markings. Number 44 'Green Splotches, White Splotches' shows how mistaken that perception can be." So begins Ian Baker in the most recent of his "colouring books". And, he emphatically makes his point in this 20 page booklet with 17 side- and plan-view drawings and 3 photos. The first set of drawings show splotches on USAAF B-17, B-26, B-24, B-25, A-20, P-40, & Spitfire. The text explains, "In May 1942, Gen. Arnold proposed several formal USAAF camouflage adjustments, one of which was for 'splotches' or 'patches' of Medium Green 42 to 'break the continuity in appearance of the wing, stabilizers, and rudder outlines'. The proposal for splotches was fairly promptly included into the basic camouflage specification by a July 1942 amendment to a revised version of T.O. 07-1-1. From that time forward, splotches were officially part of wartime USAAF camouflage." At first splotches were applied at the unit level and varied in appearance, but those splotches applied at the factory show a consistent pattern as illustrated Ian's drawings. Ian then follows up with drawings of other interesting USAAF camouflage including a Lockheed B-34A in RAF camouflage, a Douglas B-23 Dragon in an experimental scheme with a overspray of Haze Paint which was "devised to reflect blue and violet light, hopefully rendering the airborne aircraft almost invisible to the eye", a sea-search B-26B in "Neutral Grey 43 uppers with

Insignia White leading edges and undersides", a Douglas B-18B in overall "Oyster White", a P-40 which in Dark Olive Drab uppers but with "Insignia White 46 undersides for over-water patrols in the Caribbean area", a similarly painted B-24D, and, finally, a B-25C and -25G with the Insignia White upper surface extending far over the upper surfaces of the leading and trailing edges of the wing and tail surfaces.

Any modeler contemplating building a model of a USAAF aircraft from the period 1942-1943 should consult this book before putting spray to plastic.

Review copy provided by Ian K. Baker of Aviation History Colouring Book

**Kiwi Kittyhawks & Corsairs:** RNZAF fighter camouflage & markings 1942-1948. Ian Baker's Aviation History Colouring Book #46. Drawings & Notes for Modellers, Illustrators & Enthusiasts. Ian K. Baker, 31A Mercer St., Queenscliff, VIC 3223, Australia.

Ian writes in the preface, "When preparation of this booklet commenced, the job looked like it should be pretty straightforward. Wrong! The more I looked around, the more unexpected camouflage & markings variation and permutation I found. And to make matters more difficult, a lot of the visual references only gave fragmentary information, so assembling comprehensive camouflage & markings detail about any one individual aircraft, so necessary if I am to give you really useable information and drawings, took time. The current fashion for pretty profile illustrations which do little more than fill space on the page, is not one which AHCB wishes to follow. If I show only a profile of one subject, then almost invariably the remaining information regarding upper, lower, and reverse side views has already been provided in some other drawing for another subject. In this booklet you shall find, described and illustrated in some detail, the camouflage & markings of eight Kittyhawks plus seven Corsairs, no two alike, plus some general notes which put them into their camouflage & markings context."

The information on camouflage colors, the white theater markings, and the disappearing and reappearing red dot in the middle of the early roundels is all very interesting, and worth the effort to obtain this book. However, things really get exciting when the white bars to the national insignia are discussed. Where the US star and bar insignia already existed (on the fuselage and upper right and lower left wing surfaces), the star was simply painted over with the blue/white/blue RNZAF roundel, leaving the bars untouched. Thus, the roundel was a lighter Kiwi blue while the border to the bar was the darker US blue. Furthermore, on the empty upper left and lower right surfaces of the wing, the RNZAF roundel was painted on, sometimes without any border, but when a border was used, it was in the lighter Kiwi blue. Another subtle, but noticeable difference, was that the horizontal axis of the white bar of a properly-constructed US insignia lies above the centre of the circle circumscribing the star. So in those positions where the US insignia were painted over, the white bar was slightly off center, but for those insignia that were painted from scratch, the horizontal axis of the white bars passed through the center of the roundel.

Since insignia with both colors outlining the bars and with both orientation of the bars are found on the same aircraft, imagine the explaining a you will have to do when you place your correctly marked RNZAF Corsair on the contest table. You better have a copy of AHCB #46 to show the judges.

AHCB #46 is highly recommended for anyone

interested in RNZAF aircraft in WWII. It is a must for all modelers planning add a Kiwi Kittyhawk or Corsair to their collection.

Review copy provided by Ian K. Baker of Aviation History Colouring Book

[Editor: Ian explains why #45 missing: "This issue is being jointly prepared by Ian K. Baker and Seaplane SIG's Bill Devins in the USA. It will be a notable collection of Kingfisher colours and markings, but unfortunately its preparation had taken a little longer than expected. It is coming soon.]

**Frontline Illustration.** Our Russian SAFCH member, Victor Kulikov, sent copies of two issues of Russian series, Frontline Illustration, that he has authored. Both booklets consists of large, well-reproduced photographs with captions in both Russian and English. The text is entirely in Russian and incomprehensible to this reviewer. However, there is a short Summary on the back page of each issue.

3-2000: The Summary states: "The present book narrates about the strength and general condition of the Red Army and Navy before the Great Patriotic War. It also recounts the activities of the Air Force military command and personnel in June-September 1941. In addition to the original text, featuring new facts of the Red Army aviation activities in the first period of the war, the book includes several tables, concerning the organization and strength of their Air Force groupings on various theaters of operation of the Soviet-German Front. The book also features 137 photos of various Soviet aircraft of the first period of the war."

This describes rather well the content of this issue, except it doesn't mention that there are 16 color side-view drawings [TB-3, Er-2, DB-3t (an a/c that took part in the first bombing raid on Berlin), DB-3f, Pe-2, SB, Yak-4, Anbo-41, Su-2, Il-2, I-16, I-152, LaGG-3, & MiG-3 (3)].

6-2001: Again the Summary: "This book is devoted to estimation of the Luftwaffe losses at the Eastern front in 1941-1945. Brief review of the main operations of the Great Patriotic War is given, including the war of the USSR against Japan at the Far East. The majority of trophy aircraft photos is published for the first time. The book contains more 100 photos and 16 colour profiles of trophy German and Japan aircraft."

The color side-view drawings consist of: Bf 109E, Bf 109F (2), Fw 189A, Fw 190A (2), Hs 129B, Go 242B, Do 215B, He 111H, Ju 88A (2), Ju 87D (in Romanian markings), Ki.79b, Ki.51, & Ki.84]. The photos and drawings of the German aircraft show the aircraft in Luftwaffe marking except for one photo each of a He 162A and Me 163S carrying Red Star insignia.

Probably the most interesting section for SAFO readers is that on Japanese aircraft captured in Manchuria. The eleven photos in this section show the Mansyu Ki.79, Mitsubishi Ki.57 Topsy & Ki.46 Dinah, Nakajima Ki.84 Frank, Tachikawa Ki.54 Hickory & Ki.36, Kawasaki Ki.45 Nick, and Bf 108. Of special interest is a Fokker Universal codes 'M-182'.

The English translations of the photo and drawing captions are literate and informative. However, the tables would be much more useful if some English were included in the heading of the columns.

These book are a good collection of excellent photographs, but to get maximum information from them you must be able to read a little Russian. Review copies provided by the author.

Enciclopedia de la Aviacion Militar Espanola,

2,97 euros each. Quiron Ediciones, Carlos Fresno Crespo, Alcaniz Fresno's S.A., C/Cromo 18-20, Poligono Industrial San Cristobal, 47012 Valladolid, Spain. E-mail: quiron@alcanizfresno.com.

No. 33 This issue continues the presentation of "La Heraldica en la Aviacion Militar espanola" covering Republican a/c including 17 photos (DH-9, Breguet XIX, Vildbeest, Nieuport 52, & I-15). 2 color side-view drawings (Nieuport 52 & I-15), 38 color drawings of uniform badges, and 45 color drawings of emblems carried by Republican a/c. Poster inserts: Arado Ar 66 (Nationalist) and Fw 56 (Republican).

No. 34 "La Heraldica de la Aviacion Nacional (1936-39)" 35 photos (He 51, Vultee V1A, Ro.37, CR.42, He 112, Caudron Goeland, I-16, Caproni AP.1, Ju 52, & SM.79), one color side-view drawing (I-16), 35 color drawings of emblems carried by Nationalist a/c, and 8 color drawings of emblems carried on the wheel covers of CR.32s. Poster inserts: Junkers W-34 and Romeo Ro.42bis (1946).

No. 35 This issue continues the illustration of Nationalist heraldry including 22 photos (Ju 52, Ju 86, Savoia S.62, Fairchild 91, He 60E, & Cant Z.506B), one color side-view drawing (Fairchild KR.22), and 9 color drawings of emblems carried on Nationalist a/c. Then there follows "Emblemas Legion Condor" including 10 photos (He 51 & Bf 109), one color side-view drawing (He 51), and 30 color drawings of emblems carried on Condor Legion a/c. Poster inserts: Post War Ro.43 and I-15. No. 36 The illustration of the heraldry of the Condor Legion continues including 28 photos (He 51, Bf 109, Ju 52, He 111, Hs 123, & Ju 87), 2 color side-view drawing (He 111 & Bf 109), and 29 color drawings of emblems carried on Condor Legion a/c (including a few with modest cheesecake). Poster inserts: Monocoupe 90 and Sikorsky S-76C.

No. 38 This volume continues the presentation of "La Heraldica en la Aviacion Militar espanola" with 32 photos and 47 color drawings of insignia, 13 color drawings of emblems carried on the wheel spats of CR.32, and 3 color side-view drawings [Fiat CR.32 (2) and Romeo Ro.37bis]. All drawings and photos are of Spanish aircraft during the Civil War. Poster inserts: Avro 504K and Polikarpov R-Z 'Natacha'.

[Editor: These recent issues provide the modeler building a collection of models of Spanish Civil War aircraft the opportunity to add some aircraft with colorful insignia. If you have access to a reducing color Xerox copier, then it should be possible to copy these colorful emblems directly onto decal paper. The only problem is that the emblems in the book show only one side. If a "reversing" color copier is available, then the handed emblem can be reproduced, but it will made hash out of any inscriptions. I've seen "reversing" black & white copiers, but is this option available on color copiers?]

Review copies graciously provided by Carlos Fresno Crespo of Quiron Ediciones.

Kamikaze. Batailles Aeriennes #19. Lela Presse, 29 rue Paul Bert, 62230 Outreau, France. E-mail: lela.presse@wanadoo.fr. Subscription: one year (four issues) 32 Euros plus 7.63 Euros Europe or 12.19 Euros elsewhere.

This volume, although not of prime interest to many SAFO readers, continues the high standards set by previous volumes of the Batailles Aeriennes series. There are 185 photo of aircraft, both Japanese and American as well as few of the British Pacific Fleet, and ships, 13 color side-view drawings [Mitsubishi A6M2 (2), Kyushu K11W1, Yokosuka D4Y3, Mitsubishi G4M2 (2), Ohka, Mitsubishi Ki-

67, Kawanishi Ki-45, Nakajima Ki-43 III, Kawasaki Ki-61 I, Nakajima Ki-84 kou, Mitsubishi Ki-51), and 5 color painting (Grumman F6F-5N, General Motors FM-2, Vought F4U-1D, and Yokosuka D4Y4).

The "Fiches monographiques" cover with color drawings, scale drawings, and photos the F6F-3N & F6F-5N Hellcat, Ohka, and Yokosuka D4Y4

modele 43 Suisei. A 3-page "Maquette" section discusses the Hasegawa 1/72-scale Mitsubishi G3M2E Type I Model 24 'Betty' with Bombe Pilotee MXY7 Ohka Modele II and includes 7 photos of the model. A 2-page "Uniformes et tenues de vol" section has 8 color drawings of Japanese aviators in flying suits.

Kamikaze is a excellent volume with many interest-

ing photos of Japanese aircraft used on suicide missions, but the photos of so many fine ships stricken and burning was very saddening. Review copy graciously provided by Michel Ledet of Lela Presse.

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Revi, Revi Publications, PO Box 143, Svojsikova 1588, 708 00 Ostrava-Poruba, Czech Republic. E-mail: revi@ostrava.cz

These A-4 size, 52-page, colorful magazines are difficult to categorize because the editors refuse to follow the format that characterizes most model-aviation magazines. The content consists of an eclectic blend of historical and modeling articles with large sections devoted to kit reviews. These subjects are supplemented with copious color photographs and drawings, and occasionally a scale multi-view drawing. The text is entirely in the Czech language, but the photo captions are bilingual (Czech & English). Let's see what the latest few issues offer omitting those articles where the language barrier prevents this reviewer from making any intelligent comments:

#31. "Mitsubishi Ki-46 Shitei (Dinah)" 12 pages including 6 b&w and 3 color photos, 5 color side-view drawings and one top plan-view drawing, and 3 pages of multi-view scale drawings. "Let In-trideru" 5 pages including 5 color side-view and perspective color drawings and color photos of USN A-6. "Eduard Neumann v Bitve o Britanii" 4 pages including 4 color side-view drawings of Bf 109. An "Aires" advertisement with three color side-view drawings [Bf 109 (2) and Ph-51D]. A page with 5 color photos of P-38 Lightnings and a 2-page poster of Maryland ANG Texans in flight.

#32 "Letov S-328 ve sluzbach Luftwaffe" 4 pages including 15 photos. "Sedlali Demony" 5 pages including 5 photos, 4 color side-view drawings, and 2 pages of scale multi-view drawings of Nakajima Ki-44 Shoki (Tojo). "Gloster Meteor" 4 pages including 7 b&w and one color photo and 4 color side-view drawings. "Lockheed L-10 Electra v Ceskoslovensku" 6 pages including 15 photos and 3 color perspective drawings. "Chei Ha'Avir Mirage IIICJ 117.tajeset 1966-1970" 2 pages with 5 photos and 3 color side-view and one top plan-view drawing. "Strelci Hrachu v Cine" 6 pages on Boeing P-26s in China including 9 photos and 3 color side-view drawings. "4.zrakoplovna lovacka skupina v bojich na vyshode 1941 az 1944" 6 pages on Croatian Bf 109 on the Easter Front including 4 photos, several tables, and 4 color side-view drawings. A "Gavia" advertisement with 2 color side-view drawings (Soviet Po-2 & Polish Lysander).

#33, Cover color painting of a Finnish Brewster in action against a Soviet I-16. "4.zrakoplovna lovacka skupina v bojich na vyshode 1941 az 1944" 6 pages including 5 photos and 4 color side-view drawings of Croatian Bf 109. "Hat in the Ring" Squadron" 6 pages including 8 photos, several tables, and 3 color side-view drawings of Nieuport 28s. "Velitel Superfortressu" 4 pages including 6 photos and 6 color side-view drawings [B-29 (2), Mitsubishi A6M5, Nakajima J1N1, and Kokusho P1Y1 &

D4Y2]. An "AML" advertisement with 4 color side-view drawings of 2-seat Zeros.

#34. "Letadla 94. Aero Squadron" 4 pages including 5 photos, several tables, and 2 color side-view and one top plan-view drawings. "4.zrakoplovna lovacka skupina v bojich na vyshode 1941 az 1944" 6 pages including 6 photos and 4 color side-view drawings [Croatian Me 108, Bf 109 (2), MS 406]. "Jak se z Messerschmittu stal Mersu" 5 pages on Finnish Bf 109 including 5 photos, several tables, and 4 color side-view & 2 top plan-view drawings. "Fliegerkompagnie 63J" 2 pages with 3 photos and 3 color side-view drawings of Albatros D.III.

[Editor's note: In the USA, Revi is available from Squadron Mail Order for \$7.98 plus postage. The four issues reviewed above (and the 4 previous issues) were sent by a Czech member to cover his subscription to SAFO for 2001 and 2002. These sets of four is available from the SAFCH Sale Service for \$14.00 each set plus \$3.00 postage in USA. Individual issues at \$4.00 each plus \$2.00 postage in USA. For postage outside the USA, consult the US Postal Service's web-site at USPS.com for packages weighing 7 oz per issue, and add \$1.00 for the cost of a padded envelope.]

Aeronoticias - Revista Uruguaya de Aviacion - September 2001 - N° 32. This classic Uruguayan magazine is back after three years of silence caused by the poor economic situation in Uruguay. It is obvious that this issue was prepared during the intervening years and most of the news is about 'new' acquisitions for our air force and the transfer of our older training aircraft to friendly air forces. You can read about ferrying ex-FAU T-34's to Bolivia (2 photos), about the incorporation of the T-26D (SF-260EU) and Cessna U-206H into the FAU, and about the Jetstream Mk2 for the Aviacion Naval. You can also find two notes on the Aeronautical Museum at Montevideo: the PT-19 (more probably a PT-26 converted to a PT-19) donated by the Chilean Museum and transported to Uruguay on a FAU C-130, and another note on the Museum reopened for public visits. Historical articles are: (1) A 2-page article on the first double crossing of the River Plate (Argentina-Uruguay) by the Argentinian Jorge Newbery in a Bleriot 'Rentenario' which belong to the Escuela Militar de Aviacion of his country. The date was 24 November 1912 and both flights summed to 150 km with 100 km over water.

(2) A 6-page article on the Presidential aircraft of Argentina and other airplanes used by the government of our neighbor - 11 photos including Vickers Viking, Douglas DC-4, Avro Lancastrian, Aero Commander 680 Super, HS.748, F.28, B.707, and B.757. The article is by historian Atilio Marino (Argentine).

(3) I recommend the article by the Bolivian historian (and friend) Ramiro Molina Alanes consisting of brief information on each of the Bolivian Air Force F-51D which were transferred from the FAU to the FAB in 1960.

44-63549	FAU 260	FAB 260
44-63485	FAU 254	FAB 502
44-63492	FAU 255	FAB 503
44-63535	FAU 259	FAB 504
44-63574	FAU 263	FAB 505
44-63807	FAU 274	FAB 506

Note that aircraft FAB 502-506 first used the former FAU number for a year before changing to the FAB 500 series. (FAB 260 crashed in an incident involving a drug-smuggling Constellation before the change took place.) 44-63806 FAB 506 survives as a warbird in Canada/USA, but is always mis-identified in publications as ex-FAU 272. It has been positively identified as 274 in both Uruguay and Bolivia.

(4) A 13-page article by the editor of Aeronoticias (Andres Mata) on the history of the Vickers Viscounts on PLUNA, our flag airline.

(5) SAFCH member Antonio Sapienza has an interesting article on the aircraft used by Paraguay during the Chaco War. This article includes a brief history of 16 types and includes 4 photos (Travelair 6000-B, Breda Ba.44, Hanriot HD.32, and Morane Saulnier MS.139).

(6) A 4-page, 2-photo article by veteran pilot Jose de Mula describes his flights against the agricultural plagues of the mid and late forties. Good text along with very good drawings by the 'expert' Pedro Otto Cerovaz (3 views of Piper J3C Cub ex-AFT and side profiles of Aeronca Champion, Stinson Voyager, Caudron C-600 Aiglon, and 1FG "Pintas-silgo" (Brazilian-built Fw 44 Stieglitz).

(7) Two pages on the flight of a Spanish Canadair CL-215/ST commemorating the first aerial crossing of the South Atlantic in 1926.

(8) Lastly, an editorial on the future Aviation Museum in Brazil being sponsored by TAM Airline. This will include some incredible aircraft for a South American museum, principally because most are not machine that saw service in Brazil. For example, a Spitfire, Corsair, Mustang, MiG-15, etc. The two ex-Uruguayan aircraft to be exhibited will be a Chipmunk (FAU, civil 'CX'), and later Argentine civil 'LV') and an Miles hawk (ex-civilian 'CX').

Aeronoticias is available only by subscription. SAFO members interested in any of these article can ask me for copies by sending along some money to cover photo copying and mailing expenses. Eduardo Luzardo (SAFCH #1383), M.267 S.37, 91001 Barros Blancos, Uruguay.





Royal Norwegian Air Force Spitfire Mk.IXc & IXe serving with the RAF 1940-45. Norseman Decals 72-0010. Royal Norwegian Air Force Spitfire Mk.IXc & PR.XI. Norseman Decals 72-0020. Bjornar Noras, PO Box 2090 Kanebogen, NO-9497 Harstad, Norway. [www.noras.net/Welcome.htm](http://www.noras.net/Welcome.htm). SAFCH member Knut Hagen sent the instruction sheets for these decals saying "They are available in both 1/72 & 1/48 scale directly from Bjornar. Good quality decals from Tally-Ho complete the package." If the instruction sheets are any indication these are high-quality products.

The instruction sheet for 72-0010 consists of 8 pages and includes 3 color side-view drawings of Spitfires carrying RAF roundels (1) Mk.IXc PV181 'RAB' of Wing Commander Rolf Arne Berg with "invasion" stripes and Norwegian colors on the rudder, wings, and spinner. (2) Mk.IXc LZ919 'AH-T' carrying only the badge of 332 Squadron to distinguish it from an RAF Spitfire, and (3) Mk.IXc MA569 'FN-L' of Svein Heglund (16 victories) with Norwegian colors on cannon barrels. There is also a color 3-view drawing of 'FN-L' MJ931 with Norwegian colors on the spinner and in place of the 'sky' fuselage band. Six line drawings show additional side-views and top and bottom views of the wings. There are line drawings showing the detailed differences between the E- and C-wing and the early and later type rudders. The one page of text describes the evolution of marking used on Norwegian Spitfires while in the RAF.

The instruction sheet for 72-0020 is similar to that for 72-0010, only with more color. All the Spitfires carry post-war Norwegian roundels. The three color side-view drawings are: (1) Mk.IXc NH550 'AH-S' RNoAF 332 Squadron in full Norwegian markings including large fin flash and stripped spinner. (2) Mk.IXc NH193 'A-CI' with Norwegian roundels in 6 positions. (3) PR XI PL979 'A-ZB' in overall dark blue with Norwegian roundels in 6 positions. The color 3-view drawings is of 'A-BY' with white-outlined Norwegian roundels in 6 positions. Color side-view and top and bottom views of the wings are included for 7 additional Spitfires. Line drawings are again used to illustrate the differences between the E- and C- wing, and the page of text describes the evolution of Spitfire marking in Norway.

From the instruction sheets, these appear to be the decals for any modeler not afraid to add a few more Spitfires to his/her collection.

Intriguing Invaders: A-26's in Foreign, Covert & Mercenary Service. 1/72-scale decals. Delta Decals 72-008. £4.95 plus 10% UK, 15% Europe, 20% rest of world. Delta Aviation Publishing, Unit #1C, 43 Mowbray Street, Sheffield S3 8EN, South Yorkshire, England. E-mail: [delavpub@compuserve.com](mailto:delavpub@compuserve.com).

This is the most exciting of the two new decals from SAFCH member Glenn Ashley. The 14 cm by 18.5 cm decal sheet includes the markings for 6 Invaders: (1) B-26B Honduran AF in overall Dark Sea Blue with Black nacelles and a shark mouth. (2) RB-26B Biafran AF in Dark Earth with Dark green disruptive scheme on top and Pale Blue undersides. (3) B-26K USAF used in Laos on Operation "Steel Tiger". (4) B-26B in overall black used by the CIA for flights over China from Taiwan. (5) B-26K Congolese AF in Dark Green over Pale Blue Grey and la large "Makasi" bull insignia on the nose. (6) B-26B Turkish AF is overall Natural Metal.

The decals, printed in the Czech Republic by Tally

HO, are excellent and provide all the national markings, serials, and insignia needed to model all six a/c.

The 2-page instruction sheet has color side-view drawings of each a/c. These schemes all come from the book "Foreign Invaders" by SAFCH members Dan Hagedorn and Leif Hellstrom.

These decals are highly recommended to every modeler interested in the a/c of the small air forces; where else could you find decals for Biafra and the Congo? Also, the book, "Foreign Invaders" is highly recommended to everyone. Hopefully it is still available from Midland Publishing in England or the North American distributor: Specialty Press Publishers, 11481 Kost Dam Rd., North Branch, MN 55056, USA.

Review decals provided by SAFCH member Glenn Ashley of Delta Aviation Publishing.

The Wooden Wonder: DeH Mosquito in RAF, Royal Navy, RCAF, RAAF, Israeli AF service. "The Wooden Wonder" Part 1. 1/72-scale decals. Delta Decals 72-007 £4.95 plus 10% UK, 15% Europe, 20% rest of world. Delta Aviation Publishing, Unit #1C, 43 Mowbray Street, Sheffield S3 8EN, South Yorkshire, England. E-mail: [delavpub@compuserve.com](mailto:delavpub@compuserve.com).

This is another fine decal sheet from Glenn Ashley, this time featuring seven Wooden Wonders, but only one small air force subject. (1) NF.11 23 Squadron RAF 'YP-D'. (2) FR.XVII 248 Squadron RAF 'O'. (3) FB.VI 605 Squadron RAF 'T-UP'. (4) FB.VI 811 Squadron Royal Navy 'FD-4L'. (5) FB.VI 418 Squadron RCAF 'TH-H'. (6) FB.40 2 ADT&F Flight RAAF A52-137. (7) NF.30 Israeli AF '59'. The Israeli a/c served with "Bat" Squadron in the 1950's and is overall Night Black with Israeli roundels in six positions and Red '59'.

The decals are again by Tally Ho! and of the highest quality. The 2-page instruction sheet consists of color side-view drawings of all the a/c.

The decal set is definitely for the Mosquito lover. But, for the rest of us - we'll be busy building a couple of B-26s in Biafran and Congo markings.

Review decals provided by SAFCH member Glenn Ashley of Delta Aviation Publishing.

Iljushin DB 3M, 1/72-scale decals. InScale 72 AC033. Pentti Manninen, Jakomaentie 8 b c300, 00770 Helsinki, Finland. (Note new address for InScale 72.)

This is another outstanding medium-size (14 cm by 10 cm) decal sheet from InScale 72. The decals provide the national insignia, serials (both in the 'VP-' and 'DB-' serial range), squadron emblems, and red warning stripes for 10 bombers. The instruction sheet provides side-view drawings for two DB's in overall Silver Dope (VP-101 and VP-11) and seven DB's in Finnish Black/Olive Green/Silver Dope (VP-12, VP-14, VP-11, DB-18, DB13, DB-16, DB-20, and DB-21. In addition top plan views are included for VP-11, VP-14, DB-18, & DB-20. Five different squadron emblems are provided.

Anyone familiar with InScale 72 decals does not have to be reminded of the high quality of their decals and of the painstaking research that goes into them. For those not familiar with this line of decals, you're missing out on a great experience if you do not use one of their decals on your next model of a Finnish aircraft.

Review decals provided by SAFCH member Pentti Manninen of InScale 72.

S-35 OE Draken, LT-6G Texan, & S-55 Whirlwind. 1/72-scale decals. IPMS-Austria, c/o Rudolf Hoefling, Franz Koci-Strasse 4/12/23, 1100 Vienna, Austria. Web Site: [www.ipms.at](http://www.ipms.at)

This large decal sheet (14.5 cm by 21 cm) provides the national markings, squadron emblems, serial numbers, warning stripes, stencilling, and individual aircraft numbers to make any one of a variety of each of these three aircraft in Austrian Air Force markings. The decals, printed by Propagteam, are in perfect register and sharply printed in vibrant colors. The large fluorescent numbers for the Austrian Drakens are particularly striking.

The multi-page, multi-language (German & English) instruction sheet provides color side-view drawings of one example of each aircraft type and color top plan view drawings of the Texan and Draken. Black & white multi-view tone drawings are provided for several examples of each type. (1) LT-6G Texan. Side view drawings of three all-yellow aircraft: 4C-TA, 4D-TG, & 5C-TJ along with top and bottom plan views. (2) Westland S-55 Srs.2 Whirlwind. Side view drawings of 4D-XO and 3D-XP along with 1/72-scale drawings of modifications to the nose and tail required of the Italeri H-19B kit. (3) Saab 35 OE Draken. Three-view drawings of a Mk.1 '05' and a Mk.2 '12' with special markings commemorating the 1,000,000 flying hours of Austrian Drakens. All markings and stencilling are indexed to numbers on the decal sheet.

These decals sheet are recommending to everyone wishing to add an aircraft in Austrian markings to their collection, whether their predilection is jets, propellers, or rotors.

Review copy provided by Rudolf Hoefling of IPMS-Austria.

"Red Viggen", "Johan Gul", "DK215", "Blue Viggen" Special schemes. 1/72 scale decals. 720108, 720110, 720111, 720118. Anders Nowotny, Lyckhem 2490, S260 39 HASSLARP, Sweden. \$4.00 to \$8.00.

I have read about decals done with an Alps printer, but these are the first decals I have seen and I'm impressed. The decals have very good register and detail (including Squadron badges) and the colors appear to be dense and opaque including gold and silver (I haven't used them yet). All current subjects are Scandinavian with emphasis on Special schemes to include: All red Viggen with white Ghosts, All yellow Draken with black swordfishes, Yellow/black with huge Bull on its back last flight of the Finnish Draken, All blue Viggen with yellow trim - F16 wing display aircraft. All decals come with instructions and drawing, complete marking or in use with the kits decals. Some are also available in 1/48 scale.

Ric Karbowski (SAFCH #993), 21708 Tenny, Dearborn, MI 48124, USA.

"The enclosed photograph appeared in a press-release from 1930. I have the original. Last year I submitted it to the German magazine *Flugzeug Classic* and it was published in their 'letters' column.

"Anton Flettner was a very interesting personality. He was born November 1 1885 in Eddersheim near Frankfurt/Main. At first, he was a teacher of physics and fluid dynamics. He became interested in remote control and in 1915 he design a remote-controlled tank. In 1917, he offered his 'Flettner-Rudder' (now standard on ships and planes worldwide) to the Siemens company.

"After 1921, he was famous as the designer for the 'Flettner Rotor', based on the 'Magnus effect', which was used for the propulsion of the ships 'Buckau' and another ship whose name is unknown to me. In 1926, he ceased experimenting with ships, and 1927 he went into aviation. Anton Flettner designed a 'Drehflügel Flugzeug' (In German it translates as an aircraft (Flugzeug) with a rotating (Dreh-) wing (Flügel). The problem with the German translation is that today a 'Drehflügel' means the rotor of a helicopter turning on a vertical axis. In early years, it meant a rotating wing turning on a horizontal axis.

"On the original picture, the caption gives the information that the photo was taken in 1930. To protect against industrial spies, the aircraft was construction on a barge. The fuselage looks very fragile and the cockpit section obviously came from

another aircraft. (The planes of Alexander Soldenhoff have similar-looking such cockpits) but no D-7921 number is listed in the German civil register (the D- was used up until the thirties)). The propulsion was provided by a radial engine with a three-blade metal propeller. The floats are definitely of industrial construction (Edo?).

"My question is: Where did Anton Flettner live and work during the years 1927-1930? Maybe it was in the USA.

"After his unsuccessful trials of this aircraft, Flettner became interested in the helicopter problem and the German Reichsmarine (German Imperial Navy) supported this work. In 1935, he found his own company, the Flettner Flugzeugbau GmbH in Berlin-Johannisthal. The following years are well-known history.

"After the war, Flettner moved to the USA where, in the fifties (some sources say 1947), he found the Flettner Aircraft Corporation. Anton Flettner died at December 30 1961 in New York City.

"If you get some information about this aircraft or more details about Anton Flettner in USA, please send it to me. Maybe I can prepare an article for the SAFO."

Olaf Bichel (SAFCH #), Forggenseestrasse 18, D-1539 Munchen, Germany.

"I just received issue #100 of the magnificent SAFO. Congratulations, you are doing a unique-in-the-world job joining people of different countries,

cultures, languages, and politics, but with a common interest in the small air forces. We all 'speak' the SAFO language (our own Esperanto). I salute you and the entire SAFCH community.

"I would like to suggest that you publish a list of the countries of SAFO members. This would be interesting information for all of us. Then, maybe each one of us can contribute by recruiting pen pals from the countries that are not represented or are under represented."

Eduardo Luzardo (SAFCH #1383), Picardia M.267 S.37, 91001 Barros Blancos, Uruguay.

[Editor: What a great idea. I've always thought that the number of countries represented was more important than the total number of subscribers. SAFO #100 went to members in 42 countries (43 if you count the US). Argentina (2), Australia (9), Austria (1), Belgium (4), Brazil (5), Canada (15), Croatia (1), Czech Republic (9), Denmark (4), Ecuador (1), England (21), Finland (8), France (12), Germany (10), Hong Kong (1), Hungary (1), Ireland (2), Italy (9), Japan (6), Latvia (4), Lithuania (2), Malta (1), Mexico (3), Netherlands (12), New Zealand (5), Norway (2), Paraguay (1), Philippines (1), Poland (18), Portugal (3), Russia (1), Scotland (1), Singapore (2), South Africa (2), Spain (4), Sweden (8), Switzerland (5), Taiwan (2), Turkey (1), Ukraine (3), Uruguay (3), and Yugoslavia (2).]

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**Aero Research Model Aircraft Conversions, Decals, and Detail Parts.** Aero Research, 6468 Valley Wood Dr., Reno, NV 89623-1263, USA. [aeromodel@aol.com](mailto:aeromodel@aol.com)

SAFO member Jay Sherlock sent along his latest catalog (#11) listing the items he has for sale through his mail-order business. In 100 (8.5 inch by 11 inch) pages, Jay lists products from what must be every current (and many defunct) manufacturers of aircraft "after-market" products. Not only are the products listed, but Jay includes a short history of each company. I find the latter most interesting for the information it provides on companies that I've heard about but knew nothing of. For example, under "Carpena" we find: "Originally based in France, and now in Portugal, Carpena decals have been in and out of production several items in past years. They are now in full production once again, and have even been issuing new sheets." And, there are two entries under Tally Ho: "Tally Ho was a line of decals from Canada. As with so many small producers, this company just disappeared. This should not be confused with another decal firm with the same name which appeared in 1999." "This company, from the Czech Republic, should not be confused with the defunct Canadian firm which used the same name. Tally Ho! is a viable new decal company with a growing range of decal sheets in both major scales."

A useful section is the Index listing Parts and Decals first by Scale and then by aircraft. For example, for my old friend, the Brewster Buffalo, I find the following items listed. 1/48 Scale Parts (10 entries) Airwaves etched brass F2A-2 AC4850 \$6.85; Cutting Edge masking set F2A wheel hubs BM48069 \$2.15 & Buffalo canopy & wheel hubs BM48260 \$6.00; Eduard etched brass F2A Buffalo 48-033 \$9.45; Engine & Things Curtiss Wright R-3350 48-123 \$4.75; Falcon Canopy Set WWII USN VC12 \$9.00; Squadron Vacuformed Canopy F2A 9517

\$3.40; True Details wheel set 48073 \$2.15, Canopy Framing Set F2A-2 41018 \$1.70 & Wheel Masking Set 41067 \$1.70. Under 1/48 Decals, one entry Tally Ho NEIAF B.339 4104 \$2.55. Under 1/72 Scale Parts - 4 entries Eduard etched brass F2A-2 72-221 \$10.25 & B.339 72-233 \$10.25; Falcon canopy set WWII USN VC12 \$14.55; Squadron vacuformed canopy F2A 9132 \$2.49. And, under 1/72 Scale Decals, one entry Dutch Decals 72-030 \$8.70).

Of particular interest to SAFO readers will be the little-known 1/72-scale decals from Colombia by Tropidecal. "A new line of limited-run decals based on Colombian prototypes. Sheets are very limited, only one print run being made of each sheet. New sheets are issues periodically." Sheets listed are: 72-001 Douglas A-26C, 72-002 Kfir C.7, 72-003 Embraer Tucano, and 72-004 CL-13B Sabre; at \$3.50 each.

To order a catalog, contact Jay either at the e-mail address above or phone (755) 746-0915 between 8:00 am and 10:00 pm Pacific time. "Current customers (those who have placed at least one order within the previous twelve months) will automatically receive a copy of the next catalog."

Aero Research appears to be a great place for US modelers to pick up those hard-to-find detail parts and decals, and their prices seem to be competitive. If you can't find what you want here, Jay makes this offer: "If you have discovered a line of parts or decals which you feel would be welcome by your fellow modelers please let us know so we can stock it."

**Historic Aviation, Book, Videos, Art, Models & More!** 64 pages. 121 5th Avenue NW Ste. 300, New Brighton, MN 55112, USA. Telephone 800-223-5575. Web: [www.HistoricAviation.com](http://www.HistoricAviation.com).

This is the most well-produced and interesting aviation catalog I have ever had the pleasure of

receiving. First, each and every item is illustrated with a color photo of a book cover, model box top, model (if pre-assembled), video cover, and painting or poster. Organization is by topic (Civil, WWI, Between the Wars, WWII, Post War, Aviation Art, and Air Racing. The more popular aircraft receive extensive coverage, e.g. the B-17 gets two full pages. Less known aircraft still receive substantial coverage: the Brewster Buffalo items include Jim Maas' Squadron book "F2A Buffalo In Action" (\$9.95), a painting by Tommy Wedell of a USMC F2A-3 dueling with a Japanese Val over Midway (\$19.95), the Tamiya 1/48-scale kit of the F2A-2 (\$22.95), and a 1/24 scale F2A-2 display model in Philippine mahogany (\$119). In addition, under "WWII Axis" you'll find the following Buffalo-related books: "Finnish Air Force 1939-1945" by Keskinen & Stenman (\$12.95), "Lentolaivue 24" by Stenman (\$19.95), "Finnish Aces of World War 2" by Stenman & Keskinen (\$17.95), and a painting by Stan Stokes of the Buffalo of Finnish Ace Eino Juutilainen (\$39.95).

The more popular a/c have a extensive list of models; the Spitfire is represented by a 1/48 scale plastic kit, a 1/16 scale balsa kit, 1/72 and 1/48 die cast models, and a 1/32 display model. A surprise to this reviewer is the variety of die-cast models available at reasonable prices; e.g. a Spitfire Mk.IIa finished as Douglas Bader's aircraft in 1/72 scale (\$19.95) and 1/48 scale (\$69.95).

The postage-stamp size color representation of the paintings are a real joy to behold and give proof that there are some great aviation artists at work today.

This catalog is obviously put together by people who love airplanes and know the importance of models in providing a fuller appreciation of aviation history. Get on their mailing list, for I can guarantee that this is be one catalog that you'll enjoy reading cover to cover.

